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# ADVANCED ACCOUNTING



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THE MACMILLAN COMPANY  
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# ADVANCED ACCOUNTING

*By*

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THE MACMILLAN COMPANY  
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## PREFACE

In preparing this book the author's main purpose has been to furnish adequate material for intermediate and advanced courses in the principles of accounting offered to college and university students. At the same time the needs of practicing accountants for a thorough and up-to-date discussion of the crucial problems of valuation, analysis, and reporting have been kept in mind. The emphasis is on corporation accounts and statements, although much of the material is applicable to other forms of business organization.

Nine chapters (I-IV and XXIX-XXXIII) are devoted to the preparation and analysis of financial statements. This discussion is illustrated by references to the practices of more than fifty corporations, including reproduction and criticism of a number of complete statements. Attention is also directed to statements prescribed or recommended by such governmental agencies as the Federal Power Commission, and by trade associations and professional organizations. In addition there are three chapters (XXXIV-XXXVI) which consist of an intensive consideration of consolidated statements, perhaps the most difficult and technical subject in the field of accounting.

The author has long maintained that the central task of the accountant is the determination of periodic business income. In line with this position the problems of income measurement receive special consideration in chapters XX and XXI and throughout the book the effect of particular procedures and policies upon the income statement is stressed. This does not mean, however, that the point of view of the balance sheet is neglected. The author considers the present-day tendency to emphasize the income statement to be a sound development, but he does not agree with those who appear to be willing to relegate 'he statement of financial status to a minor rôle in the accounting scheme.

Among special topics receiving full treatment in this work which are often slighted or entirely neglected by writers of accounting textbooks are: accounting for investments; inventory valuation (including careful attention to last-in, first-out procedure); depreciation of utility property; interpreting and recording industrial appraisals; land valuation and accounting; depletion of wasting resources; valuation of the business enterprise; conversion and retirement of capital stock (including a thorough-

going analysis of treasury stock); surplus analysis; conversion and redemption of bonds (including consideration of refunding prior to maturity); measurement of earning power; tracing movement of funds; relation of changing price level to accounts and statements.

Throughout the book the exposition is liberally fortified with concrete examples, worked out in detail. A number of chapters, indeed, consist primarily of a series of illustrations, with connecting discussion and comment. In two cases (XXXII and XXXVI) an entire chapter is devoted to a single comprehensive problem. The author believes that students—and also other readers—will find this feature of the material particularly helpful.

While this book has been written especially to accompany the author's *Essentials of Accounting*, and includes a number of references to that work, it is believed that the treatment is sufficiently complete to permit its effective use in any course which presupposes at least one year of preparation of substantial character. In this connection it may be noted that there is some overlapping between the material of this volume and chapters XXXIII–XXXVIII of *Essentials of Accounting*.

Review questions are appended at the ends of chapters. The problem and case material prepared to accompany this book is separately printed, for convenience in handling by the student and to facilitate frequent revision.

W. A. PATON

Ann Arbor, May 1, 1941

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## **ADVANCED ACCOUNTING**



## FINANCIAL STATEMENTS

**Types and Uses of Accounting Statements.** The principal types of reports prepared by accountants are: (1) those representing the condition or position of the enterprise as of a particular date (the balance sheet); and (2) those depicting the process and results of operation for a particular period (the income sheet). These statements are compiled primarily for the purpose of furnishing essential data to the immediate management, short-term creditors, and to investors or owners, although they may also be of significance to employees and other interested parties. They are the essential product of the underlying compilations and procedures of accounting, and in considerable measure the ultimate usefulness of the accountant's work depends upon the character of the statements issued—the degree of care and discrimination exercised in their preparation and presentation.

In addition to the regular periodic reports, financial statements are prepared—usually in specialized form—in connection with organization and reorganization, borrowing operations, stock listing, taxation, trade-association activities, liquidation, and other specific occasions and conditions.

Among the subordinate types of reports regularly employed are budget schedules, cash statements, sales reports, and compilations of departmental operating data. Supplementary exhibits and analyses of various kinds, designed to accompany the primary statements, are often needed.

Unincorporated enterprises seldom issue printed statements for general distribution, and in many such concerns the internal reporting to managers and owners is very imperfectly developed. For the host of small, local corporations somewhat similar conditions usually obtain. It is only in the case of the few thousand relatively large companies, each with a considerable number of stockholders, that the importance of systematic reporting both to operating management and to absentee investors has been fully recognized. For all business concerns, and particularly those organized as corporations, the development of an elaborate tax structure and the extension of governmental control in various directions has greatly increased the volume of required reporting.



**Form and Character of Statements.** In preparing financial statements it is well that the accountant be not restricted to any rigid form. Granting the general desirability of standard procedures and of uniform terminology and arrangement, it remains true that business conditions are too varied to make it expedient to adopt a single fixed structure for all cases. Titles and arrangement may properly vary with the nature of the enterprise, the form of organization, the character of the equities, the special needs of the management, and other factors. On the other hand the limits of variation should be controlled by considerations of accuracy and clarity—considerations which may in some measure take the form of definite standards and rules of wide applicability.

Within the particular business field it may be feasible to bring about a marked degree of standardization. The statements of steam railway companies, for example, conform to the requirements of presentation prescribed by the Interstate Commerce Commission (although not all would agree that this condition is desirable). Aside from governmental pressure the more important influences tending toward standardization in particular lines are the activities of trade associations and the efforts of professional accountants interested in particular fields. The development of standard practice in special areas should be endorsed rather than deplored when the procedures and rules adopted are truly suited to the conditions in the special field, are not unduly inflexible, and are not employed in situations to which they are not applicable.

The importance of clarity in financial statements as opposed to mere technical form should be emphasized. In the underlying processes of accounting, technical devices and precise systems of procedure are of marked importance and are properly stressed by the accountant, but in the presentation of reports, designed to give information to managers and owners which will assist them in the effective administration of their enterprise, the primary criterion of excellence is usefulness, and this depends particularly upon readability. It is essential, therefore, that the captions and titles used in statements be full and clear, and that the arrangement followed promote intelligibility even if at some sacrifice of traditional form. It must be remembered that financial statements are not an end in themselves, and that statements that cannot be understood, to say nothing of those that are definitely misleading, are worse than useless.

**Balance Sheet—Nature and Use.** The balance sheet displays the underlying classifications of accounting, the assets and equities of the enterprise. It may be conceived as the framework of the double-entry system, the master account of the general ledger. What is more important for present purposes, the balance sheet represents the standing or condition of the enterprise, in so far as this may be disclosed by the ac-

counts, at a particular moment of time, usually the close of the regular fiscal or accounting period.

Although drawn from the ledger balances at the close of the period, after the process of adjustment is complete, the balance sheet is not a mere compilation of debit and credit balances. It is a financial report designed to give information to interested parties, and must accordingly be presented in the form most suited to this purpose. The captions used, for example, need not—in fact should not—conform precisely to the titles of ledger accounts. For the balance sheet, ledger balances may be combined in various ways, under statement rather than ledger headings. In condensed published statements, indeed, few if any individual items appearing in the report will correspond to particular account balances.

The balance sheet is still the most widely used and highly developed form of financial report. In virtually all of the larger enterprises, and in many of the smaller concerns, something in the way of a systematic exhibit of financial condition is regularly prepared by the accountant, although the income statement is not infrequently neglected or compiled in an incomplete and otherwise unsatisfactory form. In the published reports of corporations, likewise, the balance sheet is usually more prominently displayed than other statements and is often given more emphasis in the accompanying comments and discussion. In the banking field, to mention an extreme case, the statements regularly or irregularly issued to the public are generally confined to the balance sheet, with no disclosure of periodic income data. Further, the technical structure of the balance sheet, as a result of the attention given to this matter by accountants and others, has been more fully developed than that of the income statement. It is now possible to say that the published balance sheets of many large companies, particularly in the industrial field, are fairly satisfactory as to general form, captions, detailed arrangement, and supporting explanations.

The balance sheet furnishes useful data to present or prospective owners, investors, and creditors, and to officers and general managers. It is the balance sheet that shows the status of each equity in the enterprise, and this statement, accordingly, is of marked significance to those who have committed capital to the undertaking or are contemplating making such commitment. The periodic statement of assets and equities, in particular, throws some light upon the question of solvency and upon the relative positions of the various interests as to security. With respect to the single balance sheet this is especially true in the case of short-term creditors. The bank that is making a sixty-day loan to an enterprise, for example, is interested above all in the probable cash position of the debtor at the date of payment, and the comparison of liquid assets and current

liabilities which is afforded by the well-arranged balance sheet is significant (although not conclusive) in this connection. For the purposes of owners and other long-term investors it is desirable that a series of balance sheets in chronological order be available, as by such means trends as well as immediate financial relationships may be recognized.

The balance sheet of assets and equities, a bird's-eye picture of the position of the enterprise, is useful to the general management, especially the officials in charge of finances. The current section of the report summarizes the immediate working-capital situation, a knowledge of which is essential to the scheduling of expenditures for operating purposes, including interest and taxes, and to proper consideration of the question of dividends. The essential relationships implicit in the balance sheet, moreover, must be considered in connection with programs of expansion and methods of raising additional capital; the character of the security to be issued in raising additional long-term funds obviously cannot be determined without reference to the existing distribution of equities. At the same time it must be admitted that the balance sheet proper, especially where highly condensed, is not of great importance as an immediate basis for managerial decisions made by the heads of particular production departments, or of broad functional divisions such as those represented by purchasing, distribution, and engineering activities. In the detailed work of administration it is the highly specialized schedules, analyses, and reports, prepared to throw light on particular matters, that must be depended upon by the responsible parties.

**Limitations of Balance Sheet.** Notwithstanding its great importance as a type of financial report the balance sheet has limitations which should be clearly recognized. In the first place may be noted a general technical difficulty. The work of determining and pricing inventories and of making the other necessary analyses and adjustments at the close of the period, particularly in the case of large and elaborate enterprises, is likely to consume several days or even weeks, and is fraught with many complications. The balance sheet, accordingly, is usually prepared some time after the close of the period "as of" the given date, and the precision of the "cutoff," in the face of a continuous stream of transactions and processes, is limited by considerations of expediency.

More serious is the fact that the "values" attached to some of the important items on the asset side are dependent in marked degree upon the methods and policies inherent in the process of income determination. This means that certain of the balances reported are more properly interpreted as unexpired cost elements than as immediately realizable resources. An outstanding example is found in plant assets. Funds invested in specialized buildings and equipment are more or less irrevocably

committed to operations and often have little independent realizable value. The amounts attaching to such factors as shown in the balance sheet should therefore be viewed primarily as charges reasonably applicable to future activities rather than as available funds. On the assumption that the enterprise will continue to operate as planned, and that revenues as they appear will be sufficient to validate the commitments already made, it is not improper to treat the unabsorbed costs of existent, functioning plant units as true assets for balance-sheet purposes. At the same time it must be borne in mind, in presenting balance sheets and in interpreting such reports, that there is a very real distinction, with respect to the question of immediate liquidity, between bank balances, marketable securities, and other assets that are repositories of current funds, on the one hand, and units of specialized plant—technical production factors—on the other. Failure to recognize this point clearly is at the root of much misunderstanding and contention with respect to the methods of preparing the balance sheet and the significance of this type of statement.

Further, there are many factors having an important bearing upon both the immediate and long-run financial standing of an enterprise that are not represented in the balance sheet, however well prepared. The general character of the management, the loyalty and efficiency of the rank and file of the staff, the credit standing of the organization, the reputation and prestige of the concern with the consuming public, the possibilities of expanding output, and other imponderable conditions and circumstances are often of the utmost importance in determining the true condition and value of a business. Such factors, however, cannot be readily measured in dollars and cents, and hence no attempt is ordinarily made to account for them in the ledger or to set up estimates therefor in the regular reports. In fact the measurement of the value of the enterprise as a whole, in the light of all its conditions and prospects, is a problem of extreme complexity, and is seldom undertaken systematically except for the purpose of establishing a price in connection with a transfer of ownership, determination of a rate base (in the utility field), or in some other very special situation.

It may be noted, finally, that contingent liabilities and assets are seldom presented explicitly in the balance sheet, although accountants commonly support the practice of calling attention to contingencies in all cases in which there is any definite basis of measurement available and in which the prospect that the contingency may become an effective liability or asset is more than a mere possibility.

**Classification of Assets.** From a legal standpoint the property of the business enterprise, like that of the individual, may be classified into two

**main groups, realty and personalty.** By realty is meant land and natural resources and all more or less permanent and immovable structures attaching thereto. Personalty includes all property other than realty—cash, receivables, commodities, securities, and so on. This basis of classification, however, has little significance for the accountant in connection with either the underlying accounts or the financial reports. Likewise the tangible-intangible line of cleavage, although very important in certain connections, is not helpful as a fundamental basis of classification. In general the most useful starting point, both for ledger arrangement and for statement presentation, is the current-fixed basis of division. This line of classification is related to the economist's division of capital goods into "circulating" and "fixed" capital, and has genuine economic and administrative significance.

The principal tests or methods which may be applied in distinguishing fixed and current assets are: (1) degree of liquidity; (2) normal term or length of life; (3) rate of transfer to expense or loss; (4) technical character or method of use; (5) nature of business and intent of management. These are not entirely independent criteria, but each has some significance in itself. By liquidity is meant ease or speed of conversion into money or purchasing power without serious impairment of value. Thus a bank account is extremely liquid, virtually cash, whereas a building or a unit of equipment is commonly a highly nonliquid asset. The second test refers to length of life, regardless of other conditions. A thirty-day account receivable is a current asset; a real-estate mortgage owned, due in ten years, is a fixed asset. (If the mortgage were highly marketable it might be rated a current asset on that account.) There is some doubt as to where the line should be drawn on a time basis, but it is generally agreed that to be treated as current an item should expire or mature in less than two years, as the outside limit. The third and fourth criteria are closely related and apply only to assets consumed in production. Thus a building passes slowly into operating expense whereas a particular stock of supplies or merchandise usually is held for a comparatively short period. Further, a building or piece of equipment is never consumed physically as are raw materials and supplies. A building is used in its entirety to give off a series of similar services throughout its effective life; a pile of coal, on the other hand, is consumed in definite physical installments. The nature of the business and the purpose of the management may also have a bearing. Land in the hands of a real-estate firm, for example, may be in effect merchandise and hence a current asset, whereas land used as a site for a building is clearly a fixed asset. Likewise a marketable security held in a sinking fund, under restrictions, may be a fixed asset, while the same security held as reserve working capital

may be viewed as a current asset. It should be added that it is not always easy to label the particular asset as either fixed or current; in the nature of the situation there are bound to be many doubtful and debatable cases.

Attempts have been made to minimize the significance of the current-fixed classification by pointing out that so-called current assets represent for the most part revolving funds that are essentially fixed investments, commitments permanently necessary to the operation of the enterprise. Thus it is urged, for example, that the portion of the inventory that constitutes the average or "base" stock is as truly a fixed asset as the plant itself. The unreasonableness of this point of view should be apparent. Of course the capital of a continuing business is presumably a permanent element, and this is just as true of the capital embodied in one group of necessary resources as of that reflected in any other such group. But it does not at all follow that there is no useful basis for classifying assets. The average bank balance is an essential and continuing fund, but it remains true that cash in bank is a different type of asset from land or buildings. In general, current resources represent purchasing power immediately available or shortly to become available; in general, fixed resources are long-term, slowly revolving commitments, quite unavailable as working capital. This is a fact of considerable importance in the financial administration of the enterprise, and it is not surprising that the accountant takes cognizance of the situation in his classifications and methods of reporting.

**Groups of Current Assets.** There are five main classes of current assets: (1) cash; (2) temporary investments, readily realizable; (3) short-term receivables; (4) inventories; (5) current prepayments. Cash consists of money on hand (including all credit instruments functioning as money) and essentially unrestricted bank balances. Marketable securities and call loans are usually deemed to constitute current assets unless held for some special purpose, as already noted. The third subdivision covers ordinary accounts, notes, drafts, and all other recognizable short-term claims to money or the equivalent. The fourth class is obviously very broad and may include such items as office, store, factory, and shipping supplies (often listed as prepayments or deferred charges), as well as all kinds of materials, work in process, and salable merchandise. In some instances inventory items are very slow moving and may, not improperly, be excluded from current assets. Prepayments include unexpired insurance premiums (if the period covered is not too long), prepaid rent, prepaid royalties, advances on orders, and similar items. Many accountants exhibit valid current assets of this class, together with a miscellany of "unadjusted debits," discounts on securities, and organiza-

tion and development costs, under the caption "deferred charges." This is objectionable practice.

**Groups of Fixed Assets.** Fixed assets, in the broadest sense, may likewise be divided into five groups: (1) land and other natural resources; (2) buildings and other structures; (3) equipment of all types; (4) non-current investments; (5) intangibles. The first group has two main subdivisions, land used as building sites and for right-of-way purposes, and wasting natural resources. Wasting assets, in turn, may be subdivided into strictly nonreplaceable properties such as mines and oil wells, on the one hand, and assets such as timber, rubber plantations, and orange groves on the other. Agricultural land, subject to erosion and loss of fertility, is sometimes viewed as a wasting resource. The second and third groups, the depreciable plant assets, are closely allied and may without impropriety be combined for the purpose of presentation in condensed balance sheets. These groups cover a great range of types of property. In addition to buildings used to house operations and goods, such structures as wharves, bridges, dams, mine shafts, water mains, and pavements are included. In some cases, further, such relatively permanent attachments as plumbing systems, elevators, and heating plants are viewed in whole or in part as buildings. Equipment, as the term is used here, comprehends machines and appliances of all types, and such assets as cars, vessels, and conveyors. Under this head may also be included fixtures, furnishings, tools, containers, dies, patterns, etc. The fourth group includes holdings of securities of affiliated companies, sinking funds, surrender values of life insurance (some might treat this item as current), and all other noncurrent receivables and claims. By intangible assets are meant the values (under conditions where they may be appropriately recognized) of such assets as patents, trade-marks, trade names, copyrights, brands, franchises, and secret processes, as well as the goodwill inhering in established connections. Organization costs and development charges, properly capitalized, should perhaps be treated as a sixth class of fixed assets, although there is some excuse for the view that such items are closely related to the intangibles.

Asset arrangement in general-ledger accounts may well conform to the classification recognized in the main headings of the balance sheet, as this facilitates the preparation of the report.

**General Form of Balance Sheet.** Before considering rules for presentation of asset and equity balances, attention should be called to a number of matters relating to the general form of the balance sheet.

*Heading of statement.* This should include recognized name of enterprise (precise legal name in case of corporation), general caption, and

effective date. Special care should be taken to draw a clear distinction between either branch or consolidated statements and balance sheets corresponding to legal entities.

*Arrangement of sides.* Presentation of assets and equities on left and right facing pages is the most common form in printed statements, and is satisfactory provided adequate provision is made for contra accounts, subordinate captions, and subtotals. The principal alternative arrangement consists of a presentation of assets following the main heading on one or more pages or sheets, followed by the equity side similarly exhibited.

*Order of items.* On the asset side it is recommended that the order run from most highly current or realizable items to the most fixed or unrealizable. This has become standard practice among industrial corporations. The use of the general headings "current" and "fixed" is desirable in some cases, but in many situations the breakdown of the noncurrent group in particular into two or three main divisions, with appropriate captions, is helpful. On the equity side the liabilities should be listed before the equity of stockholders, with the current liabilities first, to facilitate comparison with current assets.

*Titles.* Adequately descriptive titles, with references to any supporting schedules and explanations, should be employed.

*Comments.* Full comments and qualifying explanations should appear in body of statement, in footnotes, or in supplementary discussion. Care should be taken, however, not to obscure essentials by loading the statement with footnotes. Where the discussion is extended it is better to handle such material as a distinct type of reporting rather than as a part of the balance-sheet exhibit.

It should be noted that for the equity side the heading in most common use is "liabilities," a rather unfortunate practice in view of the narrower legal and business usage under which the term connotes only creditors' interests. Another label sometimes applied is "liabilities and capital," and occasionally "liabilities, capital, and surplus" is met with.

**Presentation of Assets.** In this section is given an outline of special rules which may well be observed in preparing the asset side of the balance sheet, particularly in those fields where there are no conflicting specific requirements of commissions and other governmental authorities.

*"Quick" assets.* Under current assets a subtotal of cash, current marketable securities, and (possibly) first-class receivables should be displayed as a means of emphasizing the amount of purchasing power immediately available. It is not necessary to give this section any special heading.



**Cash.** See Chapter XIII of *Essentials of Accounting* for a discussion of the composition of "cash." It is not necessary as a rule to show balances in particular banks separately, and in condensed statements cash on hand may be combined with cash in bank. An overdraft should be shown as a liability rather than as an offset to cash. Cash in closed banks or deposits otherwise restricted should be excluded from current assets proper.

**Marketable securities.** Basis of valuation should be clearly indicated. Where market value and cost are sharply divergent a parenthetic showing of market value is always advisable.

**Current receivables.** Allowances for bad debts and other offsets to receivables should be shown as deductions from gross values, net balances being extended. (See Chapter XXI of *Essentials of Accounting*.) A satisfactory variation is the parenthetic display of allowances and reserves. This rule conforms to the view that if the reader of the balance sheet is aware of the amount of allowances he has a better basis for judgment. Special receivables, such as loans to officers and employees and balances due on stock subscriptions, should be segregated from ordinary accounts and notes. Long-term receivables should be excluded.

**Inventories.** The basis of valuation of inventories and supplies should be clearly stated, in an accompanying explanation if not on the face of the report. In condensed balance sheets segregation of the main classes of inventories—materials and supplies, work in process, and finished stock and merchandise—is not essential. Where, however, damaged or obsolete goods are included, or other special conditions obtain, and the amount involved is relatively large, the separate showing of the special item, with clear explanation, is recommended.

**Funds.** Sinking funds, trustee or otherwise restricted, should appear as an independent heading, between the current assets and the plant assets proper, as the inclusion of such accounts with plant or other fixed assets is likely to be confusing. Such funds should never include the securities of the reporting company. That is, neither the stocks nor other securities of the issuing company, held by the trustee as a technical feature of the procedure of operating the fund, are true assets. It is also improper to show sinking funds dedicated to the retirement of outstanding liabilities and composed of cash or securities other than those of the reporting company as a contra to the amount of such outstanding liabilities.

**Investments.** Investments in affiliated companies, and other noncurrent securities and receivables, should be shown under a special heading following the current assets. The company's own issues, in the "treasury" or otherwise not outstanding, should not be included. A supporting

schedule, with appropriate references thereto in the main statement, may be needed.

*Plant.* Under the subhead "plant assets," or similar caption, land and other nondepreciable items should be segregated, and depreciation allowances should be shown as applying only to the depreciable assets. This rule, almost universally ignored, is important; where nondepreciable and depreciable assets are shown combined in a single figure, with accrued depreciation treated as a contra to the total, the reader is left with little basis for forming an intelligent general opinion. The same rule should be observed in displaying assets subject to depletion. It follows as a corollary that even in condensed balance sheets the depreciation and depletion allowances accrued to date should be displayed; the presentation of net book balances only, with no clue as to the extent of depreciation recognized, is objectionable.

*Effect of plant valuation.* The gross amount of write-up or write-down resulting from appraisals and other revaluations should be segregated from the basic cost figures, and adjustments of depreciation applicable thereto should be segregated and the application shown. This is another practice almost universally ignored but nevertheless desirable. An alternative is to exhibit the effect of the revaluations parenthetically or in accompanying notes. Abandoned plant, valued on a nominal basis, should be segregated.

*Organization and development costs.* Organization costs and development charges, if of substantial amount, should be shown under a distinct heading, immediately following the plant assets. Further, in view of the special nature of such assets and the suspicion (not always warranted) with which they are regarded in financial circles, the use of a supporting schedule is often desirable. Both cost and amortization to date may be shown, although the presentation of the net amount only is the usual practice.

*Intangibles.* Intangible assets should be shown separately, usually as a final item on the asset side. The basis of valuation should be indicated, and sometimes supporting comments covering the origin and composition of the amount shown are needed. As in the case of organization costs the common practice is to exhibit only the net balance after the deduction of accrued amortization. There is something to be said, however, for a showing of both cost and accrued write-off.

The significance and application of certain of the above rules will be made more clear in later chapters.

**Presentation of Equity Side.** Following is an outline of points to be observed in the presentation of equities in the balance sheet.

*Current liabilities.* Current liabilities should come first (assuming that current assets appear first on the asset side), and a subtotal should be shown. Allowances for outstanding discounts and other offsets should be reported as contra items or parenthetically. A highly condensed showing is usually adequate, but accrued liabilities, such as interest, are often distinguished from ordinary accounts and notes. Advances by customers and other "deferred-revenue" balances should be given a separate heading. So-called "reserves" for tax liabilities and other reasonably definite and effective obligations, current in nature, should be included. Even in the case of such accounts as reserves for workmen's compensation, injuries and damages, maintenance guaranties, etc., in which estimate plays a large part, inclusion in current liabilities is proper provided the account can be interpreted as a reasonable statement of the amount payable, in a period of one year or less, as a result of claims, etc., that have already been established or may be said to be accrued. (For full discussion of the accounting for current liabilities see Chapters XIV-XV and XXII of *Essentials of Accounting*.)

*Fixed liabilities.* The fixed or long-term liabilities—notes, bonds, mortgages, etc.—should follow the current section. Great detail is not required for most purposes. Such obligations, when maturing within a year or less, are sometimes treated as current liabilities by public accountants, but in most cases, especially where the liability is to be refunded or where the resources to meet the obligation have not yet been accumulated in current assets, this presentation is likely to be more misleading than helpful in the interpretation of working capital. An alternative treatment is emphasis of approaching maturity dates in parenthetical form on the face of the statement or in accompanying footnotes. Bonds and notes in the "treasury" or in special funds should be treated as contra liability items rather than as assets, the net amount outstanding being extended.

*Liability discount and premium.* True discount, the difference between the sum paid or invested by the party to whom the security is first effectively issued and the amount due and payable at maturity date, should be treated as a contra to maturity or face value, to show the actual equitable amount of the obligation at date of issue, and in balance sheets at subsequent dates the unaccumulated portion of the discount should be similarly handled. This requirement is met by few if any balance sheets as now prepared. Unamortized premium should similarly be shown as a part of the total effective liability on the date of the statement.

*Liability total.* A total of all genuine liabilities, both current and fixed,

should be clearly shown on the face of the balance sheet. Only in a small minority of cases is this simple requirement met by present-day published statements.

*Indeterminate reserves.* Occasionally "reserves" are found of such an indeterminate character as scarcely to justify their inclusion in liabilities, or interpretation as an element in the stock equity. In such instances it may be necessary to present these accounts in an intermediate position following the liabilities proper. Wherever possible, however, reserve accounts should be interpreted definitely in the light of their dominant characteristics as contra asset accounts, genuine liabilities, or surplus and should be exhibited accordingly in the balance sheet.

*Contingent obligations.* Liabilities that are purely contingent—in other words, liabilities representing expenditures that may be required under certain unfavorable circumstances which may possibly eventuate but have not yet occurred—can hardly be given definite recognition in the balance sheet as a rule except in the form of accompanying explanations and notes. Such liabilities do not constitute effective equities at the date of the statement. Neither can the ordinary contract which is wholly unperformed by both parties give rise to a recognizable liability. However, where circumstances indicate that a loss will probably be suffered in connection with any commitment which has been made, attention should be called to the situation and the estimated amount of the loss should be indicated.

*Minority stock interest.* In consolidated reports the interest of minority stockholders in the capital and surplus of subsidiary companies is often set up under a special head preceding the capital and surplus of the parent or dominant company. (See Chapter XXXV.)

*Stock equity.* The stock equity should be prominently displayed under the heading "capital and surplus," "equity of stockholders," or other appropriate caption. All forms of treasury stock (unissued, donated, or purchased) should either be eliminated for statement purposes or should be shown as contra items on the equity side. True discounts on par-value stocks—or stocks with other types of formal valuations attached—should likewise be shown as contra equities. A distinction may well be drawn in this case between legal discount, callable by assessment, and sheer overvaluation, presumably not so callable.

*Preference stock.* Where one or more types of preference capital stock is outstanding the amount thereof should be displayed either as a first subdivision of the general capital and surplus section or as a separate element between liabilities and residual equity. In any event a separate total of the equity of common stockholders should be determined and

clearly displayed upon the face of the balance sheet. Division of surplus between two or more classes of stock may sometimes be troublesome, and modification of the recommended procedure may be required.

*Surplus.* Premium on par-value stock or paid-in "surplus" in the case of stock without par value should be combined with the nominal value of the stock in a subtotal under equity of stockholders, as this facilitates drawing a clear distinction between the amount invested by stockholders on the one hand and surplus resulting from undistributed earnings on the other. Under the subhead "surplus" or "earned surplus" a division between appropriated or reserved surplus and the unappropriated balance is desirable.

*Effect of valuations.* Enhancement of the proprietary equity through recognition or revaluation of intangibles or through writing up of plant or other assets should—if presented in the balance sheet in any form—be excluded from earned surplus, and should be displayed under a special heading following the total of regular capital and surplus balances. The amount of special write-downs, similarly, may be shown as a deduction from the amount of the proprietary equity as otherwise determined, although it is common practice to dispose of such adjustments shortly by charges to capital or surplus accounts.

The foregoing suggestions as to equity presentation, particularly in so far as they relate to capital and surplus, are applicable primarily to corporate enterprises, and it will be necessary to give them further attention in the chapters dealing with special features of corporation accounting.

**Model Condensed Balance Sheet.** On page 17 is submitted an outline of a condensed form of balance sheet in which the presentation conforms to the recommendations given above. For convenience in printing no attempt is made here to exhibit the two main divisions as balancing "sides" on facing pages.

The model form must of course be varied to suit the circumstances of each situation. The line of business involved, the form of organization, the type of capital structure, the basis of plant valuation—these and many other matters have a decided effect upon the headings employed and the arrangements followed. An important consideration, affecting especially the degree of condensation, is the principal purpose to be served by the report, the nature of the audience to be reached. For the use of the general management, actual or prospective investors, and other interests not concerned with details, a properly prepared and clearly stated condensed balance sheet is usually most helpful. For certain internal administrative purposes, on the other hand, a more extended statement may be needed. In many cases, as noted earlier, the needs of

**M COMPANY**  
**Balance Sheet of Assets and Equities**  
**As of December 31, 19—**

<i>Current:</i>		<i>Assets</i>	
Cash on Hand and in Banks		xxx	
Marketable Securities (basis of valuation indicated)		<u>xxx</u>	xxx
Accounts and Notes Receivable		<u>xxx</u>	
Less—Allowance for Uncollectibles (and other adjustments)		<u>xxx</u>	xxx
Inventories of Materials and Supplies, Work in Process, and Finished Goods (bases of valuation indicated)			xxx
Prepayments (unexpired insurance, prepaid rent, salary advances, etc.)		<u>xxx</u>	
<i>Total Current Assets</i>			xxx
Investments in Affiliated Companies (basis of valuation indicated)			xxx
<i>Plant:</i>			
Land—Cost		xxx	
Land—Appreciation		<u>xxx</u>	xxx
Buildings and Equipment—Cost	xxx		
Less—Allowance for Accrued Depreciation	<u>xxx</u>	xxx	
Buildings and Equipment—Appreciation (reference to explanatory note)	xxx		
Less—Accrued Depreciation Adjustment (reference to explanatory note)	<u>xxx</u>	<u>xxx</u>	<u>xxx</u>
<i>Total Plant Assets</i>			xxx
Organization Costs (reference to supporting data)			xxx
Patents, Processes, Trade-Marks—Cost		xxx	
Less—Allowance for Amortization		<u>xxx</u>	<u>xxx</u>
			<u>xxx</u>
<i>Current Liabilities:</i>		<i>Equities</i>	
Accounts and Notes Payable		xxx	
Payrolls, Taxes, Interest (and other accruals)		xxx	
Dividends Payable		xxx	
Advances by Customers		<u>xxx</u>	
<i>Total Current Liabilities</i>			xxx
<i>Long-Term Liabilities:</i>			
First Mortgage, 6% Bonds, 19—			
Amount Due at Maturity		xxx	
Less—Unaccumulated Discount		<u>xxx</u>	<u>xxx</u>
<i>Total Liabilities</i>			xxx
<i>Capital and Surplus:</i>			
Capital Stock—Preferred (details)			xxx
<i>Equity of Common Stock—</i>			
Capital Stock—Common (details)—			
Par or Stated Value	xxx		
Premium or Paid-In Surplus	<u>xxx</u>	xxx	
<i>Earned Surplus—</i>			
Appropriated (details or reference to schedule)	xxx		
Unappropriated (reference to related income sheet)	<u>xxx</u>	<u>xxx</u>	
		xxx	
Less—Cost of Treasury Stock, Unassigned		<u>xxx</u>	
		xxx	
Adjustment Resulting from Appraisal		<u>xxx</u>	<u>xxx</u>
<i>Total Capital and Surplus</i>			<u>xxx</u>
			<u>xxx</u>

particular officials and departments can be met better through the preparation of special detailed reports and schedules than through the extension of the general balance sheet.

In the outlined form the use of parenthetic details and references to supporting data is indicated at a number of points. It should be emphasized that the suggestions given are not exhaustive and are offered primarily for the purpose of calling attention to the need for adequate headings and for accompanying explanations of items which are especially subject to misinterpretation or which cannot be conveniently described on the face of the statement.

**Proprietary Equity in Unincorporated Enterprises.** The presentation of assets and liabilities (in the narrow sense) is not affected noticeably by the legal form of organization. In the balance sheet of the unincorporated enterprise, however, the balances of the accounts of the proprietor, partners, or other type of owner take the place of the capital and surplus section of the corporate statement. The following suggests the form of presentation in a simple partnership:

*Partners' Equities:*

A. J. Smith—

Capital Account . . . . .	xxx	
Current Account . . . . .	xxx	xxx

R. N. Brown—

Capital Account . . . . .	xxx	
Current Account . . . . .	xxx	xxx xxx

The heading "capital and surplus" might be retained for the single proprietorship or partnership, although "surplus" or "undivided profits" is seldom given emphasis under the bookkeeping of the unincorporated business, and has slight legal significance outside the field of corporate affairs. "Equity of proprietors" is another satisfactory caption. In some cases amounts credited to partners on account of salary allowances or in other special connections, and that remain undrawn at the date of the balance sheet, are included under liabilities rather than under the proprietary interest.

For a discussion of the special features of partnership accounting see Chapters XXXI and XXXII of *Essentials of Accounting*.

**Income Sheet—General Nature and Use.** The income sheet (or "income statement," "profit and loss statement," or "loss and gain account," as it is variously labeled) may be defined as any systematic statement or report which exhibits the amount of the periodic net income of the business enterprise and which shows, either in summary or in detail, the origin of such income and its apportionment or assignment to the various equities involved. In its most comprehensive and satisfactory form it also includes all direct surplus adjustments and the final amount of un-

appropriated surplus as displayed in the accompanying balance sheet. The income sheet, to indicate its content more definitely, presents the volume of sales and other revenue, the operating charges, and the operating balance, exhibits the effect of ancillary and nonoperating charges and credits, indicates the assignment or distribution of net earnings to contractual and proprietary investors, and shows the disposition of undistributed profits for the period together with the adjustments of accumulated surplus or deficit.

The income sheet is the accountant's historical exhibit. It displays in systematic fashion the results of the operations for the period in terms of effect upon earnings—the outstanding point of interest to the active management and to owners and investors, actual or prospective. It is the power to earn profits that is the major characteristic of the going concern as opposed to a lifeless aggregation of assets, and the income sheet is the essential supplement of the balance sheet in this connection. The amount of net income, which should be clearly exhibited by the income report, is the most prominent criterion of the degree of success attending the operation of the enterprise, and is important to the owner or investor as evidence of the value of his equity. The figure of net income, further, is the underlying gauge which must be observed in determining dividend disbursements or other forms of profit distribution (although it is of course admitted that the profits of a particular period may not be identical with the distributions in such period).

The single income report should not be taken too seriously. There is no more difficult problem of quantitative measurement and interpretation than that of determining the earnings of a complex business institution for a given period of time, especially where the period is short. The typical enterprise is a continuing entity, and setting up the report of operations and resulting earnings for a particular month, quarter, or year, coupled with a balance-sheet display at either end, means that many living fibers of activity must be cut, more or less artificially, that estimate and judgment must be relied upon at numerous points. On the other hand, the amount and trend of profits as shown by a series of such reports, carefully and consistently prepared, are reasonably dependable facts, of real service in guiding the actions of interested parties.

**Main Divisions of Income Sheet.** The income sheet includes three main divisions or sections, each of which corresponds roughly to a more or less distinct account or group of accounts in the ledger. The first of these is the "operating section." This section embraces the data of revenues and expenses and concludes with the amount of the net operating revenue. For the most part it is based upon and constitutes a summary of the expense and revenue accounts of the ledger, classified and



labeled in the manner deemed most effective in view of the uses to which the report is to be put. It is this section of the report that is of especial significance to the officials in charge of production and marketing activities, as it reflects and measures, in considerable degree, their responsibilities and accomplishments. In a condensed income sheet, it should be added, the operating section represents the data of revenues and expenses in highly summarized form, and in such circumstances one or more supplementary statements, showing the results of operation in more detail, may be required to meet the needs of the immediate management.

The second part of the general income report may be called the "income section." This division follows the showing of the operating net and indicates the distribution or assignment of this amount as interest, income taxes, dividends, and undivided profits. In addition any items of net income earned, such as interest and dividends received or accrued on securities held, should be reported in this section. In some cases, further, special net gains and net losses which are applicable to the current period but which are not properly viewed as operating items appear in this part of the statement. The concluding figure of this section of the report is the amount of unassigned profits to be incorporated in surplus (or the deficit to be charged to past surplus or to capital account).

The third section of the income sheet comprises the adjustments of surplus or undistributed earnings. Here are exhibited special losses and gains, not properly to be viewed as attaching to either the gross revenue or net income of the current period, special or irregular dividend appropriations, and other appropriations and adjustments of surplus (although mere earmarking or subdividing of surplus need not be shown). Where the surplus (or deficit) account at the beginning of the period is included, and the final figure represents the accumulated surplus (or deficit) to date, as shown by the balance sheet, this third section of the income report serves as a connecting link between the two main statements. For most situations this is a desirable arrangement.

The second and third sections of the income report are evidently closely related, and it need not be surprising that they are not sharply distinguished in most published statements. Dividend appropriations, for example, are often shown as deductions from accumulated surplus, after net profit has been incorporated therein, rather than as charges to the profits of the current period. Confusion of the operating section with income and surplus items, however, which is also common in published reports, is definitely objectionable. To treat an operating cost such as depreciation, for example, as an appropriation of net profits or surplus is statement practice at its worst.

In the income sheets of unincorporated enterprises, and in many small

corporations, the second and third sections as outlined above are not very extensive. Often, indeed, the income sheet in such situations consists primarily of a systematic statement of revenues and expenses and the net operating balance. In the report for a large corporation, on the other hand, with its several classes of investors and occasions for surplus adjustments, the income and surplus sections may be more elaborate than the operating division.

**General Form of Income Sheet.** With respect to general form there are a number of points to be emphasized in the preparation of the income sheet.

*Heading.* The main heading should include name of enterprise, general caption, and indication of period covered. The year is usually the period which receives greatest emphasis in income reports.

*Structure.* The "running" or report form is more satisfactory than a technical account form emphasizing debit and credit relationships. The older account form has been largely abandoned by American companies in their published reports.

*Titles.* Adequate descriptive titles, with references to footnotes, accompanying comments, or supporting schedules, should appear in the body of the statement. Ledger account titles are usually unsatisfactory in this connection.

*Comments.* Full comments and explanations should appear in footnotes or in supplementary discussion if it is not feasible to incorporate such material in the body of the statement.

**Preparation of Income Sheet—Specific Rules.** With respect to specific content and arrangement the following suggestions and recommendations are offered.

*Revenue.* Sales or volume of business (or other type of gross revenue) is the proper initial figure, and should never be omitted, even in highly condensed reports. Extensive classification of gross revenues, however, is not required in the condensed income statement. Sales adjustments, such as discounts and returns, should be treated as corrections of gross volume of business rather than as expenses. The regular allowance for bad debts may be included in sales adjustments.

*"Gross profit."* Intermediate "gross-profit" balances, consisting of total revenues with particular types of expenses deducted, should not be displayed in general income reports, although they may be of some value in internal departmental accounting. From the standpoint of price determination there is no preferential order of expenses, and the term "profit" should never be used until all expenses applicable to the revenues in question have been deducted. See discussion of this point later in this chapter.

*Depreciation.* Depreciation, to the extent of at least a minimum charge, should always be included in operating expenses, and the fact that depreciation has been included should be made clear in the report. (The amount should be indicated parenthetically or by footnote if depreciation charge is not shown as a separate deduction.) Depreciation is not an optional charge to be recognized or not as the management pleases. Depletion is likewise an unquestioned operating cost and should be reported accordingly, although most wasting-asset enterprises report a balance labeled "net profit before depletion."

*Expense classification.* In general, expense classifications should be presented in supplementary schedules; the use of a few main headings should suffice for the main income sheet. As a rule costs of administration and distribution should be separately displayed.

*Expense adjustments.* Expense adjustments (such as purchase discounts) should be deducted from gross expenses rather than being displayed as actual earnings. (The computation need not appear in the income sheet proper.) This point is often overlooked in statement practice, and in some cases serious distortion of figures is the result. (See discussion of nature of purchase discounts in Chapter XIV of *Essentials of Accounting*.)

*Interest.* Interest charges—a return on creditor capital—should be treated as a contractual distribution of income rather than as an operating expense. Otherwise the fact of the concern's earning power as an economic entity, aside from specific capital structure, is obscured, and comparisons between different enterprises and between periods in the same enterprise tend to be improperly made. This point is especially important in the case of concerns having a large interest-bearing indebtedness. (See discussion of the position of interest in accounting in Chapter XXI.)

*Net items.* Rentals and similar items to which certain expenses are actually applicable should not be treated as net earnings. Similarly interest and dividend earnings that are essentially net should not be combined with revenues subject to deductions. (For financial concerns such as banks and investment trusts, interest and dividends earned are elements of gross revenue.)

*Dividend charges.* Preferred and common dividend appropriations should be separately deducted, and the net profit available to common stock should be emphasized. Regular dividend requirements should be explicitly compared with current earning power, before amalgamation of profits and surplus. This requirement is seldom observed in corporate reports but is nonetheless sound. It should be added that comparison of

dividend requirements and net profits is not justified where the periods involved do not correspond. Quarterly dividends, for example, should not be charged to net profit as shown by a monthly income report. The addition to (or deduction from) surplus, after current dividend appropriations, should be clearly displayed.

*Special charges.* All special charges and losses should be explicitly shown in income report—either as adjustments of current earnings or as deductions from past accumulations. This point has a special importance. The policy of excluding “extraordinary” losses and other adjustments from the main income statement opens the door to serious misrepresentation and suppression of important information.

*Reconciliation with balance sheet.* The concluding figure of the income report should be the balance-sheet surplus (or deficit), and should be labeled accordingly. Where the practice is followed of earmarking portions of surplus as reserves, to which special losses are charged and special gains credited on the books, and the recommendation is accepted that all losses and gains must be reported in the income statement, it is necessary to take the reserve appropriations and charges into account in reconciling with the balance sheet. The simplest way of doing this is to include all beginning and year-end reserve balances in beginning and year-end surplus figures shown in the income sheet. (See Chapter XXVI.)

**“Gross Profit” in Income Sheet.** The recommendation that intermediate balances be avoided in the display of revenues and expenses in the general income sheet, and the suggestion that where any such balance is struck the use of the term “profit,” however qualified, is improper, runs counter to well-established tradition, particularly in certain fields, and requires further support. The argument for this suggestion may be outlined as follows. In the price-making process all necessary costs of operation are on essentially the same level. There is in general no warrant for the view that certain types of costs have priority or right of way over other charges, or are more surely recoverable than other charges. In relation to the volume of revenues all costs are essentially homogeneous. Where revenues are insufficient to cover all costs certain costs are not recovered in full while other charges are entirely “unearned”; the truth is that revenues apply proportionately to all classes of charges. It is quite unreasonable to assume that merchandise cost in the trading field, or so-called production cost in manufacturing, has any peculiar virtue. In the last analysis cost of merchandise is primarily a bundle of service costs of various types incurred by agencies other than the buying concern, and the various service costs incurred by the merchandiser in turn are very similar in economic character. Likewise those costs of manu-

facturing that the cost accountant finds plausible bases to assign to production in the narrow sense are mine-run operating charges no more and no less significant in the entire process than the unassigned costs.

It follows that there can be no profit, in any legitimate sense, until all costs have been taken into account. To express the matter otherwise in the income report is almost certain to lead to misunderstanding on the part of customers, employees, and the general public, and tends to be confusing to management and investors. Surely it is not to the interest of any enterprise to issue reports in which "gross-profit" balances, far in excess of actual profits, are prominently displayed. And the businessman seldom finds it helpful, in the management of the enterprise, to adopt the view that certain costs—as unavoidable and as legitimate as other costs—are necessary evils having an unfortunate bearing on what would otherwise be actual profits. It also follows that order of deduction of operating charges is a matter of convention and convenience, nothing more. Some classes of charges are of course more important quantitatively than other types of cost, in the particular concern, and hence may deserve emphasis by position in the report, but a procedure designed to give emphasis should not be carried to the point of implying degree of propriety or recoverability.

It is granted that it may be desirable in many income reports to distinguish between cost of sales in the sense of merchandise cost or production cost as distinct from other types of charges (although the importance of this line of cleavage in condensed reports for the enterprise as a whole can easily be exaggerated). Such classification, however, does not require the striking of an intermediate balance, the disclosure of a so-called "gross profit."

In departmental computations, as was acknowledged above, it may be desirable or even necessary to strike balances before recognition of the costs common to all divisions and hence assignable only on an arbitrary basis. But even in this connection it should be borne in mind that directing attention to departmental gross margins may be less useful than emphasis upon percentage relations of particular types of departmental costs to departmental gross.

**Model Condensed Income Sheet.** The model form given on page 25 illustrates the general application of the foregoing rules.

The condensed income sheet may begin with the figure of net (or adjusted) sales. In no case, however, should sales returns and similar offsets be included in operating expenses. The division of operating costs into three or four main classes of charges is often desirable, even in highly summarized reports. In particular it may be desirable to show the amount of selling and related costs, and the charges for administration

## M COMPANY

## Income Sheet

For Year Ended December 31, 19\_\_

Gross Sales (or main volume of revenues otherwise appropriately labeled)—with reference to supporting schedule or schedules for departmental data . . . . .			xxx
Less Revenue Adjustments (discounts, returns, estimated uncollectibles, etc.) . . . . .			xxx
<i>Net Sales</i> . . . . .			xxx
Operating Expenses (subdivided and explained as fully as desired here or in supporting schedules) . . . . .			xxx
<b>Net Operating Revenue</b> (from principal activities) . . . . .			xxx
Ancillary ("side-line") Gross Revenues . . . . .	xxx		
Ancillary Expenses . . . . .	xxx	xxx	
<i>Total Net Operating Revenue</i> . . . . .			xxx
Net Income Items (interest, dividends, etc.) . . . . .			xxx
			xxx
Special Net Deductions (nonoperating losses assignable to current period) . . . . .			xxx
<i>Total Net Income</i> . . . . .			xxx
Interest Charges (classified where this is desirable) . . . . .			xxx
Net before Income Taxes . . . . .			xxx
Federal and Other Income Taxes (amount accrued applicable to current earnings) . . . . .			xxx
<b>Net Profit to Stockholders</b> (or other proprietary investors or owners) . . . . .			xxx
Preferred Dividends (regular appropriations) . . . . .			xxx
<b>Net Profit to Common Stockholders.</b> . . . . .			xxx
Dividends on Common Stock (assuming regular appropriations) . . . . .			xxx
<i>Addition to Surplus</i> (or, in case of a deficiency after dividends, deduction from surplus) . . . . .			xxx
Surplus at Beginning of Period . . . . .		xxx	
Losses and Special Charges (not applicable to current period) . . . . .	xxx		
Special and Irregular Dividend Appropriations . . . . .	xxx	xxx	xxx
<i>Surplus per Balance Sheet, December 31, 19__</i> . . . . .			xxx

and other general costs, as distinct from the so-called production costs. Attention may again be called to the desirability of indicating clearly the amount of the charges for depreciation, depletion, and amortization of intangibles in view of the degree to which estimates are involved in the computation of these costs and the extent to which such items are improperly handled or omitted entirely. In handling minor ancillary revenues and expenses the inclusion of the net result in the main report, with a reference to a supporting schedule where this may be helpful, is often sufficient. It should be emphasized in this connection that the common practice of including costs applicable to special revenues in operating expenses charged to sales, the amount of the special revenues, in gross, then being added to so-called operating net, is unsatisfactory, and occasionally will result in a serious distortion.

The above form is evidently drawn primarily to meet the needs of corporate organization, and provides for recognizing interest on bonds and

dividends on preference stocks. In the case of unincorporated enterprises, not in general subject to income taxes on the enterprise as such, the figure "net before income taxes" would become "net profit" or "net proprietary income" and except for a possible showing of the assignment of such profit to two or more proprietors, or recognition of losses not applicable to current period, the statement would close at this point.

It is also possible to present in the income sheet a showing of appropriated surplus, including charges during the period and additional amounts earmarked or reserved. This is hardly necessary, however, except to the extent of displaying all losses and gains which have been dealt with under the head of appropriated surplus.

**Footnotes and Comments.** Where carefully chosen titles and parenthetic explanations on the face of a statement, coupled with discriminating arrangement, are insufficient to clarify particular matters involved, or where supplementary factors and conditions have a bearing on the statement, it is necessary to resort to footnotes or accompanying comments. In published statements the use of qualifying and explanatory notes has been marked in recent years, in part as a result of the influence of the requirements of the Securities and Exchange Commission, and in general this development is to be viewed as desirable. It is true that where a statement is burdened with a lengthy list of numbered comments, without organization or a connecting thread of discussion, the reader may become lost and fail "to see the town for the houses." But it is also true that under the present complex conditions of business organization and operation statement captions and attached amounts are often quite inadequate as a basis for understanding.

The principal occasions and reasons for the use of explanatory notes are as follows: (1) to explain bases of valuation; (2) to refer to contingencies and other matters which have a bearing but cannot be conveniently displayed in the body of the statement; (3) to call attention to a special change or unusual condition; (4) to amplify statement captions where this is needed; (5) to point out alternative treatments in debatable situations.

In some situations what is most helpful is a well-knit analysis of the conditions reflected in the statement proper. Such an analysis, indeed, may be carried to the point at which it represents in itself a financial "statement" of much greater significance and value than the conventional tabulated report. See Chapter XXXI for further consideration of the "discussion" type of statement.

**Supporting Schedules.** Special tabulations designed to amplify particular elements of the principal statements are often required, as already

noted. Such supplementary exhibits may consist of a bare list, in more or less detail, of the components of a particular figure, or they may represent something by way of special analysis and arrangement and hence deserve to be rated as a special form of report. In general, supporting schedules are equally useful in connection with either of the main types of statements.

A highly technical type of supporting schedule is that which displays the composition of a general-ledger balance in terms of the accounts appearing in the corresponding subsidiary ledger. Such schedules are prepared by the accountant in connection with periodic audits and reconciliations and usually are not represented—in their original form, at any rate—as exhibits accompanying published financial reports. The most familiar examples associated with balance-sheet data are the schedules of accounts receivable and payable, and the tabulations of stores and plant ledgers. Compilations of underlying cost or “expense” ledgers are the most common form of supporting schedule of this type associated with the income sheet.

Schedules prepared expressly to supplement financial statements include summaries of plant additions and retirements, classification of inventories with special reference to bases of valuation, analyses of surplus account, lists of investments, details of organization costs, computation of “cost of sales,” statements of securities issued or retired during a particular period, display of revenues by principal divisions, exhibit of changes in working capital, and so on. Illustrative examples from published corporate reports are shown in Chapter II.

**Comparative Statements.** In the presentation of the financial statistics of the enterprise the use of the comparative statement is becoming increasingly common. Such statements consist essentially of columnar exhibits of the data for two or more successive periods arranged to facilitate comparison of congruous items. A feature of many “two-period” reports is the display of differences—increases and decreases. See examples in Chapter II taken from published corporate reports.

The special importance of the comparative statement lies in the fact that changes are often more significant than principal amounts, especially where the changes are of such a character as to represent tendencies or trends. The accountant must make use of estimates, judgments, valuations, in various connections, and consequently many of the figures presented in his reports have a limited quantitative validity. This is particularly true of the values attached to specialized plant assets and the charges to operation representing estimated expiration of such values. Granting, however, that the practices followed are reasonably sound and



are consistent from year to year, the trends of primary financial elements and relationships represent dependable evidences of financial processes and conditions.

The Committee on Accounting Procedure of the American Institute of Accountants has formally recommended general use of comparative statements in corporate reporting.

### QUESTIONS

1. What are the two main types of financial reports? Name several kinds of subordinate and specialized statements.
2. What are the principal considerations that should control the form and content of financial statements?
3. Explain the relationship between balance-sheet headings and ledger titles. Indicate the significance of the balance sheet to the various parties concerned.
4. How should the principal groups of "values" presented in the balance sheet be interpreted? Show that some types of factors having an important bearing on financial position cannot be reported in conventional statements.
5. List five tests which may be applied in distinguishing fixed and current assets and illustrate the application of each.
6. List the five main classes of current assets. Under what five heads may fixed assets be classified? Give specific examples of each.
7. Discuss the general form of the balance sheet.
8. How should each of the following be dealt with in balance-sheet presentation.  
(1) cash in closed banks; (2) loans to officers and employees; (3) separate bank balances; (4) marketable securities; (5) bank overdrafts; (6) allowance for bad debts; (7) office supplies; (8) damaged goods; (9) bonds held in sinking fund; (10) investments in affiliated companies; (11) surrender value of life insurance; (12) cost of buildings and equipment; (13) appreciation of depreciable assets; (14) allowance for depreciation based on cost; (15) organization costs; (16) cost of patents; (17) abandoned plant?
9. Discuss the presentation of liabilities, including accruals, "reserves," long-term obligations approaching maturity, bond discount and premium, and contingencies.
10. With illustrative figures, outline the presentation of capital stock and surplus in the balance sheet, including treatment of preferred stock, cost of treasury stock, paid-in surplus, appropriated surplus, and adjustment from revaluation.
11. Illustrate the presentation of the proprietary equity in a partnership.
12. What is the general character of the income sheet? Which of the major statements, in your judgment, is the more important to the stockholder?
13. Of what three main divisions is the income sheet composed? Explain the content of each.
14. What is meant by "gross profit"? Should this balance be shown in the general income report? Explain fully.
15. Outline the content and arrangement of the income statement, including attention to questions of departmentalization of sales, adjustments for discounts and bad debts, depreciation, expense classification, interest charges, ancillary revenues and expenses, interest and dividends earned, nonoperating and capital gains and losses, dividend appropriations, and surplus reservations.
16. What are the principal purposes of explanatory footnotes and comments?
17. What is meant by "supporting schedules"? Illustrate.
18. Indicate the special significance of comparative statements.

## II

### PUBLISHED STATEMENTS ILLUSTRATED

**Use of Published Statements.** Several thousand of the more important corporations, as noted in the preceding chapter, now publish regular reports to stockholders. The standard practice is to issue an annual report, supplemented by interim communications, usually quarterly or semiannual, which stress condensed operating and income data. In some cases these reports are confined to the financial statements (with a note of transmittal and the auditor's certificate attached); in others the report is in the form of a substantial pamphlet and includes discussion of business developments, industrial relations, and kindred topics. The 1939 report of the Clinchfield Coal Corporation, for example, consists of a folder containing only three printed pages. At the other extreme is the 1939 report of the Diamond Match Company; this is a book of 140 pages of discussion and exhibits.

The use of published statements was formerly confined largely to banks, railways, and other regulated fields, and to the very large industrial enterprises. In recent years, however, the practice has been extended until reports are available from virtually all companies whose securities are listed on an organized exchange and from many unlisted corporations as well. Among factors responsible for this development are the increasing diffusion of stock ownership, the growth of investment trusts and the accompanying interest in statement analysis, the requirements of the exchanges, and the extension of governmental control of business activity. It has come to be recognized that the affairs of the large corporation are not a strictly private matter to which only the immediate management shall have access. The right of the individual stockholder or creditor to reports covering all essential data is now fully acknowledged, and there is also a growing realization of the importance of the public interest. Today most large companies are quite willing to furnish copies of their reports to any interested party—an attitude quite in contrast to that of thirty years ago. Present-day statements and reports, moreover, are incomparably more extensive and informative than those of an earlier period.

**Nature of Examples.** All of the following illustrations are taken from

recent printed reports of corporations. The statements shown are reproduced precisely as issued, except that in most cases the exhibit has been reduced in size. Accompanying explanations and supporting schedules are not in general reproduced (although some illustrative schedules are shown), but all footnotes attaching directly to the statements are given.

In selecting examples the very largest companies have been avoided. Some consolidated statements are shown (most published reports available are of this type) but only where the stock ownership of the dominant company is one hundred per cent. The illustrations in this chapter are confined to various fields in the so-called "industrial" group. It is in this area that governmental regulation and prescription have been least in evidence and that statement practice, consequently, has been able to develop most freely in response to the needs and conditions of business. This does not mean that governmental influence is inevitably unfortunate; quite the contrary is often the case. It is true, however, that where the form and content of statements is strictly prescribed the usual result is too much immediate rigidity and—what is worse—the discouraging of progress. At the present time it is indisputable that the peak of development of sound accounting and reporting is found in the leading industrial companies rather than among banks, insurance companies, railways, and other strictly regulated corporations. And it is to be hoped that the Securities and Exchange Commission, in its efforts to remedy some of the serious weaknesses in the practice of many companies, will not take steps that will tend to check further growth and improvement.

The purpose of presenting a number of illustrations from practice is to indicate clearly the present status of corporate reporting and to afford a concrete basis for the discussion of points raised in the preceding chapter. As indicated by the accompanying comments, the statements shown are by no means ideal with respect to general form, titles, or arrangement; they are selected as typical of current practice among fairly large corporations and show numerous bad or questionable features. The comments offered, particularly when raising questions of content as opposed to form, are often queries rather than conclusions; this is in part the result of the lack of adequate data with respect to the affairs of the companies whose statements are presented. It is perhaps unnecessary to say that in no case are the comments on the illustration intended to be exhaustive. As a means of developing resourcefulness in the fascinating art of reading and criticizing financial statements, the reader should endeavor to weigh the attached observations and look for additional pertinent points.

It should be understood that the discussion of statements at this stage

is largely confined to form and content. The methods of analyzing statements in connection with the process of judging progress and financial standing are considered in later chapters.

### **International Salt Company**

#### *Comments on balance sheet:*

1. Important feature is separation of equity side into two main divisions, with clear-cut showing of total liabilities and total stock equity or capital.
2. Readability would be improved if important subdivisions on asset side were emphasized typographically.
3. Among points deserving of commendation are: use of term "allowance" for contra valuation items; showing of amount of "allowance for doubtful accounts and cash discounts" (although round figures do not imply a careful estimate); indication of character of "inventories" and basis of valuation; indication of basis of valuation of "properties and plants" and segregation of land cost; segregation of "nonoperating properties."
4. Among questionable treatments or features are: failure to segregate nonoperating land; location of current prepayments; deduction of sinking fund deposits—apparently not yet used—from par of bonds outstanding.

#### *Comments on income sheet:*

1. Commendable practice is followed of weaving income and surplus data into a single connected statement.
2. Name of concern is usually specifically shown on income statement as well as on balance sheet.
3. Specific commendable features include: treatment of sales "discounts, returns and allowances" as direct deduction from gross revenue (although the amount might be shown); recognition that "freight outward" is a cost rather than an offset to gross sales (although location of this charge might be improved); segregation of depreciation and depletion and treatment as operating expenses; treatment of bond interest as income charge; relating of dividends paid for year to profit for year (although this might be done in more clear-cut manner).
4. Undesirable or questionable features include: striking of intermediate "gross profit" balance, with important costs still to be deducted; no indication of nature of "miscellaneous other deductions"; undue prominence given to headings "Deduct" and "Add," with lack of typographical emphasis on important subheads.

**INTERNATIONAL SALT  
AND ITS SUBSID  
CONSOLIDATED BALANCE**

**ASSETS:**

Cash:		
On hand and demand deposits in banks.....	\$ 1,204,122.95	
Time deposits.....	356,033.14	\$ 1,560,156.09
Trade notes and accounts receivable.....	828,243.89	
Less, Allowance for doubtful accounts and cash discounts.....	27,500.00	800,743.89
Inventories at average cost:		
Salt.....	164,017.26	
Bags, containers, etc.....	302,056.79	
Mine, well and commissary supplies.....	137,566.67	603,640.72
Total current assets.....		2,964,540.70
Balance of deposits in closed banks, less \$25,000 allowance for loss.....		13,449.91
Investments, at cost (underlying value not available):		
Real estate mortgage.....	28,000.00	
Sundry stocks, etc.....	33,698.54	61,698.54
Properties and plants, at cost to subsidiary companies on the basis of capital stock issued or cash paid therefor:		
Land.....	376,688.07	
Buildings, shaft and well development, machinery and equipment, salt deposits, etc.....	\$16,561,986.12	
Less, Allowance for depreciation and depletion.....	8,453,008.66	8,108,977.46
Nonoperating properties held for future use (land, buildings, shaft and well development, machinery and equipment, salt deposit, etc.).....	2,172,779.98	
Less, Allowance for depreciation and depletion.....	764,049.70	1,408,730.28
Leasehold properties (buildings, salt deposit, etc.).....	632,186.68	
Less, Allowance for amortization.....	357,173.63	275,013.05
		10,169,408.86
Deferred charges:		
Insurance deposits and unexpired premiums, prepaid taxes, traveling funds, etc.....	74,040.61	
Unamortized balance of premium on bonds refunded (\$174,212.50) and related expenses.....	217,800.00	291,840.61
Trade brands, etc.....		1.00
		<u>\$13,500,939.62</u>

NOTE. On January 14, 1939, International Salt Company (New Jersey) called for lateral Trust Fifty-Year Five Per Cent Bonds due October 1, 1951. At December amount of the bonds not surrendered, plus interest.

Under an indenture dated as of January 1, 1939, the company issued of which, together with other funds, were used to redeem the First and Con the trustee on December 31st of each year of \$100,000 plus six months' interest interest. At December 31, 1939, the bond trustee held cash to retire \$300,000

**COMPANY (NEW JERSEY)  
IARY COMPANIES**

**SHEET as of DECEMBER 31, 1939**

**LIABILITIES:**

Trade accounts payable.....		\$	79,830.88
Accrued liabilities:			
Pay rolls, etc.....	\$	13,020.94	
Taxes, other than federal income taxes.....		67,799.06	80,820.00
			<u>132,442.62</u>
Provision for current federal income taxes.....			1,682.92
Unclaimed dividends and bond interest.....			<u>294,776.42</u>
Total current liabilities.....			
Bond indebtedness (Note):			
International Salt Company (New Jersey) Twelve-Year 3¼ Per Cent Sinking Fund Debentures, due January 1, 1951, authorized and issued.....		3,800,000.00	
Less, Amount to be redeemed for which funds have been deposited with trustee.....		300,000.00	3,500,000.00
			<u>31,736.71</u>
Rental payable, deferred.....			<u>3,826,513.13</u>

**CAPITAL:**

Capital stock, no par value:

Authorized 240,000 shares:

issued as follows:

	<u>Shares</u>	<u>Amounts</u>
In exchange for \$100 par value stock at par of stock surrendered.....	180,000	\$ 6,000,000.00
At assigned value, equiva- lent to \$33 per share.....	60,000	1,980,000.00
	<u>240,000</u>	<u>7,980,000.00</u>

Earned surplus (including \$32,703.50 representing discount on capital stock purchased and retired in prior years) as annexed...	<u>1,694,426.49</u>	<u>9,674,426.49</u>
		<u>\$13,500,939.62</u>

redemption the balance (\$3,801,000) of First and Consolidated Mortgage Col-  
ber 31, 1939, the bond trustee held \$21,827.91 to redeem \$20,500 principal

\$3,800,000 Twelve-Year 3¼ Per Cent Sinking Fund Debentures, the proceeds  
solidated Mortgage bonds. The present indenture provides for deposit with  
thereon or such other amount as the company may desire up to \$300,000 plus  
of the bonds in January, 1940.

**CONSOLIDATED STATEMENT of INCOME and EARNED SURPLUS**  
**for the year ended December 31, 1939**

Gross sales, less discounts, returns and allowances.....		\$7,095,405.71
Cost of goods sold (before depreciation, depletion and amortization and taxes) including \$686,695.97 freight outward..		<u>3,618,858.91</u>
Gross profit from sales and manufacturing (before depreciation, depletion and amortization and taxes).....		3,476,546.80
Deduct:		
General and administrative expenses, selling, advertising and research.....	\$1,833,776.56	
Depreciation and depletion of plants and equipment, and amortization of leasehold properties.....	584,202.24	
Taxes, other than federal income.....	<u>244,706.66</u>	<u>2,662,685.46</u>
Income from operations before provision for federal income taxes.....		813,861.34
Add, Other income (including \$6,666.66 contract recovery)		<u>30,233.64</u>
		844,094.98
Deduct:		
Interest on funded debt (including \$104,742.50 on five per cent bonds called for redemption in 1939).....	224,125.83	
Other interest.....	516.20	
Amortization of bond premium and refunding expenses..	19,787.15	
Miscellaneous other deductions.....	<u>5,121.63</u>	<u>249,550.81</u>
		594,544.17
Provision for current federal income taxes.....		<u>132,442.62</u>
Profit from current operations.....		462,101.55
Deduct:		
Premium on bonds purchased and retired.....	3,050.00	
Additional prior years' taxes.....	2,602.77	
Provision for loss on deposits in closed banks.....	25,000.00	
Adjustment of prior years' contract liability.....	<u>22,580.65</u>	
	53,233.42	
Less, Recovery on investment previously written off.....	<u>1,000.00</u>	
	52,233.42	
Cash dividends paid at rate of \$1.75 per share.....	<u>420,000.00</u>	<u>472,233.42</u>
Deducted from surplus.....		10,131.87
Earned surplus (including \$32,703.50 representing discount on capital stock purchased and retired in prior years):		
Balance at beginning of year.....		<u>1,704,558.36</u>
Balance at end of year.....		<u><u>\$1,694,426.49</u></u>

**Mathieson Alkali Works***Comments on balance sheet:*

1. Comparative form, though not particularly common in published statements, is a good feature.
2. Note the prominently displayed subdivisions.
3. Specific commendable features include: indication of basis of pricing inventories; segregation of development costs; parenthetic showing of market value of securities in sinking fund; showing of shares in sinking fund and treasury as contra items; unusual analysis of surplus.
4. Unsatisfactory or questionable features include: lack of indication of general character of "miscellaneous" investments; failure to segregate land; no indication of amount of effect of appraisal on property value and depreciation; location of "deferred charges" (if current prepayments) and failure to indicate nature of this item; poor location of "sinking-fund" assets; location of "reserve for contingencies," if essentially earned surplus; lack of indication of nature of "miscellaneous operating reserves," a substantial item.

*Comments on "profit and loss" and surplus statements:*

1. Use of comparative form is commendable.
2. Omission of sales and all operating costs other than "depreciation, obsolescence and depletion" is very unsatisfactory, even for condensed statement.
3. Showing of "earnings per share" is an interesting feature.
4. "Interest earned on sinking-fund assets" is presumably included in "income credits."
5. Dividends for year might well be more definitely compared with net income for year.
6. "Analysis of free surplus" is an interesting schedule, particularly in its cumulative aspect.

**United Air Lines Transport Corporation***Comments on balance sheet:*

1. Note typographical emphasis on main subdivisions.
2. Current receivables and payables are subdivided to an unusual and perhaps unnecessary extent for a published statement.
3. Tabular showing of plant assets, with details as to kind and extent of property, is noteworthy.
4. Emphasis on contingent liabilities and commitments is in line with increasing stress laid on such factors by public accountants.
5. Among specific commendable features are: parenthetic showing of



# The MATHIESON ALKALI WORKS (INC)

## COMPARATIVE BALANCE SHEET AS AT DECEMBER 31, 1939 AND DECEMBER 31, 1938

### ASSETS

#### CURRENT ASSETS:

	1939	1938	INCREASE Decrease
Cash	\$ 1,183,087.38	\$ 1,116,309.38	\$ 66,778.00
Notes and Trade Acceptances Receivable	66,678.77	81,243.41	14,564.64
Accounts Receivable (Less Reserve)	1,277,981.02	917,100.02	360,881.00
Inventory at Cost (Products, Finished and in Process, are valued substantially below present selling prices)	1,993,044.09	2,081,234.17	88,190.08
	\$ 4,520,791.26	\$ 4,195,887.18	\$ 324,904.08

#### INVESTMENTS:

In wholly owned Shipping Company at net worth as shown by the books of that Company	\$ 717,224.37	\$ —	\$ 717,224.37
On deposit under New York State Workmen's Compensation Law	60,936.25	60,936.25	—
Miscellaneous	109,648.89	134,801.10	25,152.21
	\$ 887,809.51	\$ 195,737.35	\$ 692,072.16

#### PROPERTY ACCOUNT—Based upon appraisal in 1922 with subsequent additions at Cost:

Land, Leaseholds, Buildings and Equipment	\$35,154,412.51	\$34,971,500.86	\$ 182,911.65
Less: Reserve provided for Depreciation and Obsolescence of Plant and Equipment and Depletion of Brine Wells	16,498,367.47	15,150,231.71	1,348,135.76
	\$18,656,045.04	\$19,821,269.15	\$ 1,165,224.11

#### DEVELOPMENT EXPENSES FOR PRODUCTS AND PROCESSES

	\$ 161,755.20	\$ 195,125.02	\$ 33,369.82
DEFERRED CHARGES	\$ 218,176.95	\$ 259,495.54	\$ 41,318.59

#### SINKING FUND:

Securities (Market \$415,646.65) at Cost	\$ 410,045.11	\$ 352,484.40	\$ 57,560.71
Cash	2,759.83	5,396.22	2,636.39
	\$ 412,784.94	\$ 357,880.62	\$ 54,904.32
	\$24,837,562.90	\$25,025,394.86	\$ 168,031.96

### LIABILITIES

#### CURRENT LIABILITIES:

	1939	1938	INCREASE Decrease
Accounts Payable	\$ 430,336.00	\$ 316,600.47	\$ 113,735.53
Accrued Taxes, Payrolls, etc.	353,969.39	362,189.04	8,219.65
	\$ 784,305.39	\$ 678,789.51	\$ 105,515.88
CONTAINERS CHARGED TO CUSTOMERS (RETURNABLE)	\$ 210,167.55	\$ 174,135.95	\$ 36,031.60

#### RESERVES:

Reserve for Contingencies	\$ 160,870.29	\$ 160,870.29	\$ —
Miscellaneous Operating Reserves	210,986.76	206,880.75	4,106.01
	\$ 370,969.05	\$ 367,751.04	\$ 3,218.01

#### CAPITAL STOCK:

Preferred—Authorized (Par Value \$100.00 Per Share)	35,000 Shares		
Issued	31,696 Shares		
Less: Held in Sinking Fund	7,919 Shares		
Outstanding	23,777 Shares	\$ 2,377,700.00	\$ —
Common—Authorized (No Par Value)	1,000,000 Shares		
Issued	818,191 Shares	\$16,024,768.50	\$ —
Less: Held in Treasury	30,020 Shares	560,555.56	\$ —
Outstanding	828,171 Shares	\$15,464,213.14	\$ —
		\$17,841,913.14	\$ —

#### SURPLUS:

Free	\$ 4,468,656.65	\$ 4,856,358.42	\$ 387,701.77
Appropriated for Retirement of Preferred Stock:			
Invested: In Company's own Preferred Stock	\$768,566.18	1,181,351.12	\$4,584.94
Securities and Cash	412,784.94	\$ 5,650,007.77	\$ 5,237,222.83
	\$24,837,562.90	\$25,025,394.86	\$ 168,031.96

# COMPARATIVE PROFIT AND LOSS ACCOUNT

FOR THE YEARS ENDED

DECEMBER 31, 1939 AND DECEMBER 31, 1938

	1939	1938	INCREASE Decrease
<b>EARNINGS:</b>			
After deducting Manufacturing, Selling and General Administrative Expenses:			
Works Operations	\$5,000,389.15	\$2,931,922.45	\$ 68,466.70
Other Operations	116,512.49	104,315.06	12,197.43
Total Earnings from Operations	\$5,116,901.64	\$3,036,237.51	\$ 80,664.13
Provision for Depreciation, Obsolescence and Depletion	1,744,358.64	1,738,752.71	14,594.07
Net Earnings from Operations	\$1,372,543.00	\$1,277,484.80	\$ 95,058.20
Income Credits	54,238.06	53,860.99	397.07
	\$1,426,801.06	\$1,331,345.79	\$ 95,455.27
Income Charges	116,065.61	109,397.84	6,667.77
Total Income	\$1,310,735.45	\$1,221,947.95	\$ 88,787.50
Federal Income and Capital Stock Taxes	214,773.58	222,474.64	7,701.06
<b>NET INCOME FOR YEAR TRANSFERRED TO SURPLUS ACCOUNT</b>	\$1,095,961.87	\$ 999,473.31	\$ 96,488.56
Earnings Per Share on Common Stock	\$1.12	\$1.01	
Number of Shares of Common Stock Outstanding	828,171	828,171	

## SURPLUS ACCOUNT

Free Surplus at January 1, 1939	-	-	-	-	-	\$4,896,358.42
ADD:						
Net Income for Year 1939	-	-	-	-	-	1,095,961.87
						<u>\$5,932,320.29</u>
DEDUCT:						
Preferred Stock-Sinking Fund Requirements:						
Appropriation for 1939	-	-	-	-	-	\$ 50,000.00
Interest Earned on Sinking Fund Assets,						
included in Net Income above	-	-	-	-	-	4,904.32
						<u>\$ 54,904.32</u>
Dividends Declared:						
On Preferred Stock	-	-	-	-	-	\$ 166,499.00
On Common Stock	-	-	-	-	-	1,242,320.32
						<u>1,408,799.32</u>
Free Surplus at December 31, 1939	-	-	-	-	-	<u>1,465,665.64</u>
						<u>\$4,468,666.65</u>

## ANALYSIS OF FREE SURPLUS

Surplus at January 1, 1922 (Unanalyzed)	-	-	-	-	-	\$1,480,013.95
Earned Surplus January 1, 1922 to December 31, 1939	-	-	-	-	-	\$4,532,164.72
<b>Capital Surplus Charges:</b>						
Net Charges January 1, 1922 to December 31, 1938	-	-	-	-	-	\$ 362,170.90
Charges during 1939	-	-	-	-	-	362,170.90
						<u>4,169,993.82</u>
Total Surplus at December 31, 1939	-	-	-	-	-	\$5,650,007.77
Less—Appropriations for Sinking Fund for retirement of Preferred Stock	-	-	-	-	-	1,181,351.12
Free Surplus at December 31, 1939	-	-	-	-	-	<u>\$4,468,656.65</u>

## UNITED AIR LINES TRANSPORT CORPORATION AND SUBSIDIARY

**CURRENT ASSETS:**

Cash in banks.....	\$3,860,655.34	
Working funds.....	77,213.50	
United States Treasury notes (quoted value \$1,534,531.25).....	1,522,109.38	
Accounts receivable from —		
United States Post Office Department, for carrying mail during December 1939 and the unpaid balances for prior months.....	721,313.22	
Other air lines, customers, agencies, etc., for air transportation sold and other items.....	995,075.95	
Students enrolled at the Boeing School of Aeronautics, for tuition being paid on an installment basis.....	202,592.30	
Inventories of spare parts, service materials and other supplies located at the various airports along routes flown by the company —		
Unused supplies and gasoline and oil priced at average cost.....	409,147.01	
Used supplies priced at 10% of cost new.....	46,277.16	\$ 7,834,383.86

**INVESTMENTS AND OTHER ASSETS:**

Amounts due from and withheld by United States Post Office Department on mail contracts annulled February 19, 1934, and subsequent receivables of \$62,741.50 in controversy.....	\$ 431,266.23	
United States Treasury notes and bonds —		
Deposited as collateral to surety bond (quoted value \$56,409.38).....	56,007.27	
Deposited under annulled mail contracts (quoted value \$37,957.50).....	36,049.29	
City of New York bonds deposited under terms of airport lease (quoted value \$16,200.00).....	15,735.82	
Real property and equipment not used in operations less reserves — stated at estimated realizable values.....	61,694.81	
Miscellaneous investments.....	7,861.19	608,614.61

**DEFERRED CHARGES:**

Balance of cost of air mail route purchased in 1937 — in process of amortization by charges to surplus of \$41,800.00 annually.....	\$ 83,600.00	
Prepaid rents, insurance and other expenses.....	185,292.94	268,892.94

**REAL PROPERTY AND EQUIPMENT USED IN OPERATIONS—**

stated at original cost (less write-down of \$376,869.68 on buildings in 1932):

<i>Classification</i>	<i>Cost</i>	<i>Depreciation Reserves (See note)</i>	<i>Net</i>
Land and buildings consisting of 25 hangars, 2 airports, 3 office buildings and miscellaneous other structures at various locations of which \$1,445,353.79 is on leased property \$	3,537,233.93	\$1,199,671.03	\$2,337,562.90
Flying equipment consisting primarily of 60 airplanes and 171 engines.....	6,210,478.79	3,793,480.56	2,416,998.23
Ground radio, hangar, shop and other equipment.....	1,610,633.87	826,337.85	784,296.02
<b>Totals.....</b>	<b>\$11,358,346.59</b>	<b>\$5,819,489.44</b>	<b>\$5,538,857.15</b>
			<b>\$14,250,748.56</b>

NOTE: The company's experience has demonstrated that the useful lives of certain air-  
craft computing depreciation provisions; and the company received permission from the  
Commission as of January 1, 1940, and to use the revised estimated useful lives in the determina-  
tion of \$580,000 in the depreciation reserves and deficit account shown in the above balance sheet,  
the years 1939 and 1938, respectively.

market value of securities owned; indication of basis of pricing inventories; segregation of property not in use; indication of basis of valuation of plant; clear-cut recognition of fact that advances by patrons are liabilities.

6. Among specific questionable features are: showing of disputed claims on U. S. Post Office Department as good asset; showing of balance of cost of air mail route as an asset without explanation; lack of segregation of land; failure to subtotal capital stock and "paid-in surplus"; indirect manner of referring to deficit.

*Comments on income and surplus account:*

1. Note comparative form, accompanying single balance sheet.

**COMPANIES CONSOLIDATED BALANCE SHEET, DECEMBER 31, 1939****CURRENT LIABILITIES:**

Accounts payable for equipment and other purchases.....	\$ 404,438.38	
Amounts due other air lines for transportation sold for their accounts.....	586,867.75	
Deposits received for air travel cards less transportation used or purchased by holders.....	397,087.42	
Accrued salaries, wages, insurance and rentals.....	343,155.57	
Accrued taxes.....	224,850.60	
Tuition paid by students of Boeing School of Aeronautics in advance of instruction.....	237,861.50	
Transportation purchased but not yet used by passengers....	122,082.57	\$ 2,316,343.79

**CAPITAL STOCK AND SURPLUS (DEFICIT):**

Capital stock —		
Authorized 2,000,000 shares, par value \$5 per share, issued and outstanding 1,500,451 shares.....	\$7,502,255.00	
Paid-in surplus —		
Representing balance of value assigned by board of directors to net assets acquired August 31, 1934 over par value of stock issued therefor.....	\$3,549,890.29	
Representing net cash proceeds from sale of capital stock in excess of par value.....	2,823,487.87	6,373,378.16
Earned surplus (deficit).....	1,941,228.39	11,934,404.77

**CONTINGENT LIABILITIES AND COMMITMENTS:**

Suits have been instituted against the companies with respect to insurance, accident, alleged anti-trust violation, and alleged patent infringement claims. While the amounts initially claimed are substantial and the ultimate recovery by the plaintiffs cannot now be determined, the companies estimate that the liability thereunder not covered by insurance is nominal.

Commitments have been made amounting to approximately \$4,725,000 for airplanes and engines (including \$3,600,000 scheduled for delivery after 1940) and \$175,000 for miscellaneous supplies.

The company has offered to acquire, subject to the approval of the Civil Aeronautics Authority, the outstanding capital stock of Western Air Express Corporation on a basis which permits stockholders of Western Air Express Corporation to elect to take either  $\frac{1}{4}$  share of capital stock of the company or \$1.66 in cash and  $\frac{1}{4}$  share of capital stock of the company for each share of capital stock of Western Air Express Corporation. As of December 31, 1939 Western Air Express Corporation had outstanding 404,000 shares of capital stock, of which 280,607 shares had been deposited in escrow pursuant to the company's offer. The Civil Aeronautics Authority has not yet rendered its decision in the matter of this proposed acquisition.

\$14,250,748.56

planes, engines, and other equipment are longer than the estimated lives used as the basis Civil Aeronautics Authority on February 27, 1940, to adjust the overaccruals for depreciation of subsequent depreciation provisions. Such adjustment will result in a decrease of of which amount \$280,000 and \$170,000 are applicable to the provisions for depreciation in

2. Special commendable points include: classification of revenue; inclusion of depreciation in expenses; classification of taxes.

3. Questionable features include: association of income taxes with other taxes; charging write-down of cost of mail route directly to surplus.

**Sullivan Mining Company***Comments on balance sheet:*

1. See reference to use of "last-in, first-out" inventory method.
2. Note showing of "distributions to shareholders" on balance sheet rather than on profit and loss statement.
3. Specific questionable features include: no indication of allowance for uncollectibles; no indication of amount—if any—by which supplies

**United Air Lines Transport Corporation and Subsidiary  
Companies Statement of Consolidated Income and Sum-  
mary of Consolidated Earned Surplus (Deficit) Account**

**OPERATING REVENUES:**

	1939	1938
Transportation of—		
Passengers.....	\$ 7,621,800.98	\$ 5,570,289.84
Mail.....	3,702,071.09	3,505,136.85
Express.....	497,866.55	419,321.10
Miscellaneous (net).....	465,635.41	430,405.48
Total operating revenues.....	<u>\$12,287,374.03</u>	<u>\$ 9,925,153.27</u>

**OPERATING EXPENSES AND TAXES:**

Operation, consisting of pilot, service crew and other salaries and wages, gasoline, insurance, advertising, and other expenses.....	\$ 8,427,452.86	\$ 7,718,569.42
Maintenance, consisting primarily of overhauling planes and engines, and replacement of parts in connection therewith.....	1,345,289.70	1,528,034.52
Depreciation of planes, engines and other property, less salvage on equipment sold.....	1,553,996.99	1,256,024.82
Taxes—		
On gasoline and oil used in planes.....	234,776.65	202,866.21
Unemployment and old age benefit.....	203,109.15	188,327.84
Property, franchise and miscellaneous.....	102,655.77	77,031.71
Federal income taxes.....	131,000.00	—
Total operating expenses and taxes.....	<u>\$11,998,281.12</u>	<u>\$10,970,854.52</u>
Net income or loss from operations.....	\$ 289,092.91	\$ 1,045,701.25

**OTHER INCOME:**

Interest and other income from miscellaneous investments, securities, etc. (net).....	33,028.58	48,480.21
Net income or loss (see note on balance sheet).....	<u>\$ 322,121.49</u>	<u>\$ 997,221.04</u>

**SUMMARY OF CONSOLIDATED EARNED SURPLUS (DEFICIT) ACCOUNT**

<b>DEFICIT BALANCE DECEMBER 31, 1938</b> .....	\$ 2,221,549.88
<b>ADD</b> —Amortization of cost of air mail route purchased in 1937—charged to surplus as authorized by board of directors and United States Post Office Department.....	41,800.00
	<u>\$ 2,263,349.88</u>
<b>DEDUCT</b> —Net income for the year ended December 31, 1939, as above.....	322,121.49
<b>DEFICIT BALANCE DECEMBER 31, 1939</b> .....	<u>\$ 1,941,228.39</u>

have been written down; lack of any description of large item of "deferred charges"; lack of indication of nature or market value of "mining investments"; failure to segregate land, and to separate depreciable property and applicable reserve from depletable property and accrued depletion; indirect manner of showing deficit; combination of deficit and "paid-in" surplus.

*Comments on profit and loss statement:*

1. Condensed presentation, except for classification of taxes.
2. Commendable showing of "depreciation, depletion, and amortization" as elements in "cost of production."
3. Two important figures are shown without headings.

# Sullivan Mining Company

## Balance Sheet, December 31, 1939

### A S S E T S

#### CURRENT ASSETS:

Cash, Demand deposits.....	\$ 592,888.94
Accounts Receivable, Trade.....	141,393.78
Ore and Metal in Transit. At net realizable value.....	5,843.50
Metal Inventory. At cost, which is lower than market (See Auditor's Certificate)	
Finished Metals.....	\$ 258,231.96
Metals in Process.....	93,838.36
Supply Inventory. At the lower of cost or market.....	110,630.00
Total Current Assets.....	<u>\$1,202,826.54</u>

#### OTHER ASSETS:

Cash Deposits under Compensation Bonds.....	\$ 17,527.20
Prepaid Insurance .....	6,102.32
Notes and Accounts Receivable.....	3,990.00
Deferred Charges .....	196,217.90
Total Other Assets.....	223,837.42
MINING INVESTMENTS. At cost.....	97,772.55

#### FIXED ASSETS:

Property, Plant and Equipment. At cost.....	\$8,421,940.97
Less: Provision for Depreciation, Depletion, and Amortization .....	1,697,354.46
Total Fixed Assets.....	6,724,586.51
	<u><u>\$8,249,023.02</u></u>

### L I A B I L I T I E S

#### CURRENT LIABILITIES:

Accounts Payable:	
Trade .....	\$ 83,057.94
Bunker Hill and Sullivan M. & C. Co.....	28,037.53
Hecla Mining Company.....	77,236.42
Wages Payable .....	39,261.70
Taxes Accrued .....	70,656.28
Personal Injury Awards.....	5,319.68
Total Current Liabilities.....	<u>\$ 303,569.55</u>

#### OTHER LIABILITIES:

Personal Injury Awards. Due after December 31, 1940.....	14,626.82
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#### ADVANCES BY PARENT COMPANIES:

Bunker Hill and Sullivan M. & C. Co.....	\$1,525,500.00
Hecla Mining Company.....	1,525,500.00
Total Advances by Parent Companies.....	3,051,000.00

#### CAPITAL STOCK:

Authorized 500,000 shares of par value \$3.00 each..	\$1,500,000.00
Unissued 462,552 shares.....	1,387,656.00
Issued, outstanding and fully paid 37,448 shares.....	112,344.00

#### SURPLUS:

Earned: Balance at December 31, 1938 (Deficit)....	\$1,085,360.86
Earnings for twelve-month period ended December 31, 1939, per Profit and Loss Statement herewith	62,843.51
Balance December 31, 1939 (Deficit).....	\$1,022,517.35
Paid in: Balance December 31, 1938.....	6,250,000.00
	\$5,227,482.65
Distributions to Shareholders, Years 1936-37.....	460,000.00
Total Surplus .....	4,767,482.65
	<u><u>\$8,249,023.02</u></u>

# Sullivan Mining Company

## Profit and Loss Statement For Year Ended December 31, 1939

Metal and Ore Sales, Net.....		\$2,949,445.64
Cost of Production:		
Operating Expenditure.....	\$2,187,704.29	
Depreciation, Depletion, and Amortization.....	196,219.78	
Metal Inventory Decrease.....	412,127.98	
Property Taxes.....	43,545.18	
		<u>2,839,597.23</u>
		\$ 109,848.41
Miscellaneous Income .....		<u>11,275.50</u>
		\$ 121,123.91
Income Deductions:		
Taxes—Social Security.....	\$ 21,386.36	
—Capital Stock .....	10,177.00	
—Federal Income .....	17,063.79	
—Idaho Income .....	9,653.25	58,280.40
		<u>62,843.51</u>
Net Profit for Year 1939.....		<u>\$ 62,843.51</u>

### AUDITOR'S CERTIFICATE

We have made an audit of Sullivan Mining Company accounts for the year ended December 31, 1939; reviewing the accounting procedure and verifying or examining or testing the accounts by methods and to the extent we deemed appropriate.

Supply and metal inventories have been certified to by Company officials. Substantially all the metal inventory has been computed by the "last-in first-out" method, under Treasury Regulations, resulting in a decrease of 1939 earnings by approximately \$25,000.00 and a reduction of the ending inventory by approximately \$31,000.00, as compared with the method used in the previous year.

Provision for depreciation, depletion, and amortization of fixed assets has been consistently computed by the unit method based upon tonnage estimates by Company officials. We have formed no opinion as to the market value of mining investments carried at cost.

In our opinion, based upon such examination, the accompanying Balance Sheet and Profit and Loss Statement fairly present, in accordance with generally accepted accounting principles applied on a basis consistent with that for the preceding year (except as heretofore noted), the true financial position of the Company at December 31, 1939, and the results of operations for the twelve-month period ended that date.

Portland, Oregon  
February 17, 1940.

A. W. STROWGER,  
By Wade Strowger,  
Certified Public Accountant.

4. Some indication of nature of "miscellaneous income" would be desirable.

### Gotham Silk Hosiery Company, Inc.

#### Comments on balance sheet:

1. Illustrates use of accompanying notes.
2. Illustrates practice of showing details relative to capital stock on face of statement.
3. Note showing of marketable securities at market price. Where is effect of write-up or write-down recorded?

December 31, 1939

Notes referred to appear on page 7.



**CONSOLIDATED PROFIT AND LOSS STATEMENT (NOTE D)**  
**GOTHAM SILK HOSIERY COMPANY, INC., AND SUBSIDIARY COMPANIES**  
*Year ended December 31, 1939*

Net sales		\$9,652,757.71
Cost of goods sold; advertising, selling, shipping, administrative and general expenses (exclusive of provision for depreciation)	\$8,878,875.33	
Provision for depreciation as determined by The American Appraisal Company, Inc.	346,539.04	9,225,414.37
<b>OPERATING PROFIT</b>		<b>\$ 427,343.34</b>
Other income:		
Discount earned	\$ 29,469.22	
Interest earned	2,090.39	
Dividends received	640.00	
Prior year tax adjustments—net	4,167.85	
Miscellaneous	20,129.62	56,497.08
		<b>\$ 483,840.42</b>
Other deductions:		
Provision for cash discounts	\$ 67,556.43	
Losses on leaseholds	72,032.89	
Loss (after provision of \$11,574.84 for depreciation) on renting of dwellings	170.32	
Loss on capital assets sold or discarded—net	25,626.46	
Interest paid	6,390.25	
Miscellaneous (bad debts, realized exchange losses, etc.)	12,855.56	184,629.91
		<b>\$ 299,210.51</b>
Funded debt charges:		
Interest	\$ 87,925.68	
Amortization of discount and expense less discount (\$15,632.69) on debentures purchased for retirement	3,209.07	91,134.75
<b>PROFIT BEFORE INCOME TAXES</b>		<b>\$ 208,075.76</b>
Provision for income taxes (Canadian subsidiary) — (Note E)		33,000.00
<b>PROFIT BEFORE EXCHANGE ADJUSTMENT</b>		<b>\$ 175,075.76</b>
Adjustment upon translation of operating results of Canadian subsidiary from Canadian dollars to U. S. dollars at rate of exchange at December 31, 1939 (Note D)		19,094.42
<b>NET PROFIT</b>		<b>\$ 155,981.34</b>

**CONSOLIDATED SURPLUS**  
**GOTHAM SILK HOSIERY COMPANY, INC., AND SUBSIDIARY COMPANIES**  
*Year ended December 31, 1939*

Accumulated earnings; less dividends, etc.:		
Balance—December 31, 1938	\$1,419,110.29	
Add net profit for year	155,981.34	
		\$1,575,091.63
Deduct:		
Cash dividends on Preferred Stock (\$7.00 per share)	\$178,220.00	
Adjustment upon translation of net working assets of Canadian subsidiary company from Canadian dollars to U. S. dollars at exchange rate of December 31, 1939, less portion applicable and charged to income account	9,933.66	188,173.66
Balance—December 31, 1939		<b>\$1,386,917.97</b>
Surplus remaining from reacquisition of own shares at discount:		
Balance—December 31, 1938	\$ 138,776.09	
Add discount on 1,640 shares of Preferred Stock reacquired during year	35,443.00	
		\$ 174,219.09
Deduct excess of cost of fractional shares of Common Stock reacquired during 1939 over capital applicable thereto	8.30	
Balance—December 31, 1939		174,210.79
<b>CONSOLIDATED SURPLUS—DECEMBER 31, 1939</b>		<b>\$1,561,128.76</b>

4. See references to continuous appraisal service. Where is effect on income and surplus reflected?

5. This statement illustrates objectionable but well-nigh universal combination of bond discount, a true contra to par of bonds, and bond issue costs, a genuine deferred charge.

## NOTES TO FINANCIAL STATEMENTS

*Note A*—In accordance with past practice, the consolidated balance sheet includes the assets and liabilities of the wholly owned Canadian subsidiary, the amounts for which have been translated into United States dollars at the rate of exchange at December 31, 1939, with respect to working assets and current liabilities, and on a dollar for dollar basis with respect to property, plant and equipment. The amount of Canadian working assets less current liabilities, so included, was \$264,073.43.

*Note B*—Since 1931 the property accounts, including reserves applicable thereto, have been maintained in accordance with recommendations and continuous service reports of The American Appraisal Company, Inc., with the exception of a plant discontinued prior to 1939 which was written down to assessed valuations (\$189,500.00) of land and buildings. The amount for another plant dismantled toward the close of 1939 is 1932 reproduction cost (\$509,675.00) less the related reserve for depreciation (\$139,008.48).

Net increase during the year in the depreciated reproduction costs of active property, plant and equipment amounted to \$40,101.41, resulting principally from (1) additions to property, plant and equipment and knitting machine conversion costs all totalling \$785,092.95, (2) less depreciated reproduction cost of plant dismantled, and equipment sold or retired totalling \$404,226.50, and (3) less \$346,339.04 provided for depreciation during the year.

*Note C*—The balance sheet contains no amount for possible recovery of profits and damages by the parent company as plaintiff in a patent suit against another hosiery manufacturer, which suit was decided in a prior year in the parent company's favor. The Special Master appointed by the United States District Court of Delaware to ascertain the amount to be recovered by the parent company filed his report on December 15, 1938, recommending an award of \$192,000.70, plus \$10,314.07 for certain expenses incurred by the parent company in connection with the accounting proceedings. The Court has not as yet passed upon the Special Master's recommendation. Costs and expenses amounting to \$39,163.71, paid to December 31, 1939, in connection with the proceedings, have been included in the balance sheet under "Deferred Charges."

*Note D*—In accordance with past practice, the consolidated profit and loss statement includes the operations of the wholly owned Canadian subsidiary, which, to facilitate comparison with prior years, have been consolidated on a dollar for dollar basis, less an adjustment of \$19,094.62, to bring the net profit of the Canadian subsidiary (\$156,355.19 Canadian) to the United States dollar equivalent at the rate of exchange at the year end.

*Note E*—The consolidated profit and loss statement for the year ended December 31, 1939, contains no deduction for U. S. federal income tax as deductions from taxable income offset the taxable income of the year.

*Note F*—The Company is obligated under certain labor agreements to install additional machinery and to make improvements to equipment, amounting approximately to \$250,000. The period for fulfilling this obligation runs to August 30, 1941.

Certain damage suits and two patent infringement suits are pending against the parent company and one patent infringement suit is pending against the Canadian subsidiary, all of which, in the opinion of counsel, are without merit. One of these patent infringement suits was commenced in 1935 and has never been brought to trial. A suit for alleged patent infringement was instituted in 1937 against the Canadian subsidiary because of its use of the "3 carrier method" of manufacture, but this action has not yet come to trial. In March 1938 in an action brought by certain other manufacturers in Canada, the Canadian patent covering this method of manufacture was held invalid by the court, but it is reported that an appeal has been taken from this decision. Another suit for alleged patent infringement was instituted in July 1939 against the parent company in the United States District Court, Southern District of New York because of its use of the same "3 carrier method" of manufacture. The United States patent upon which this suit is based was previously adjudged invalid in another Federal District Court and the decision there rendered was sustained on appeal.

## GOTHAM SILK HOSIERY COMPANY, INC.

NEW YORK, N. Y.

We have examined the balance sheet of Gotham Silk Hosiery Company, Inc. and its subsidiary companies as of December 31, 1939, and the statements of profit and loss and surplus for the year then ended, have reviewed the system of internal control and the accounting procedures of the companies and, without making a detailed audit of the transactions, have examined or tested accounting records of the companies and other supporting evidence, by methods and to the extent we deemed appropriate. Accounts receivable were tested by communication with the debtors. We were present at the taking of the inventories at the year end, observed the procedures, and extensively test checked the quantities determined by employees of the companies as on hand; we also reviewed inventory prices and computations.

In our opinion, the accompanying balance sheet and related statements of profit and loss and surplus present fairly the consolidated position of Gotham Silk Hosiery Company, Inc. and its subsidiaries at December 31, 1939, and the consolidated results of operations for the year, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

New York, N. Y.  
February 8, 1940.

ERNST & ERNST.

6. Listing of intangibles at \$1 is common but not altogether satisfactory.

7. Specific questionable features include: phrase "since realized" attached to "mortgages receivable" harmless but unnecessary; allowance for doubtful accounts appears to be rather small; lack of any figures as

## MANDEL BROTHERS, INC.

(INCORPORATED IN DELAWARE)

*Balance Sheet, January 31, 1940*

## ASSETS

## CURRENT ASSETS:

Cash and tax anticipation warrants:

Cash .....	\$1,246,438.82	
City of Chicago—Board of Education tax anticipation warrants at cost plus ac- crued interest .....	121,678.24	\$1,368,117.06

Notes and accounts receivable:

Notes—customers .....	\$ 27,256.76	
Accounts:		
Customers .....	1,798,002.14	
Due from vendors and sundry .....	96,158.18	\$1,921,417.08

Less—reserve .....	160,722.06	1,760,695.02
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Inventories—certified by the management as  
to quantities and condition:

Merchandise—at the lower of cost or market .....	\$2,117,762.42	
Supplies—at current cost .....	92,462.13	
Merchandise in transit—at cost .....	249,360.91	2,459,585.46

Total current assets .....		\$5,588,397.54
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## SECURITIES OWNED:

Bonds—at market value .....	\$ 18,450.00	
Sundry—at cost or nominal value .....	7,272.33	

Total securities owned .....		25,722.33
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PROPERTY AND IMPROVEMENTS—at  
cost .....

\$3,545,538.92
1,747,436.27

Less—reserves for depreciation .....

Property and improvements—depre-  
ciated cost .....

1,798,102.65

PREPAID EXPENSES—insurance, rent, etc....

77,290.34

GOODWILL AND TRADE-NAME .....

1.00

TOTAL .....

\$7,489,513.86

## MANDEL BROTHERS, INC.

(INCORPORATED IN DELAWARE)

*Balance Sheet, January 31, 1940*

## LIABILITIES

## CURRENT LIABILITIES:

## Accounts payable:

Trade creditors .....	\$ 332,380.54	
For merchandise in transit .....	249,360.91	
Sundry creditors .....	48,823.00	\$ 630,564.45

## Accrued accounts (not due):

Real estate and personal property tax .....	\$ 403,082.70	
Illinois occupational (sales) tax .....	111,199.05	
Salaries and wages .....	104,810.54	
Rent .....	65,296.03	
Unemployment and old age benefits taxes .....	22,116.90	
Federal income tax .....	58,732.34	
Sundry taxes and expenses .....	7,558.95	772,796.51

Total current liabilities .....		\$1,403,360.96
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## RESERVES:

Insurance (for claims originating prior to discontinuance as self-insurer) .....	\$ 12,877.95
Unearned carrying charges and rentals, etc.....	52,498.78

Total reserves .....	65,376.73
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## NET WORTH:

Common capital stock—authorized 313,000 shares of no par value (less 16,200 shares held in treasury) .....	\$3,287,713.95
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## Surplus:

Paid-in (no changes during the year ended January 31, 1940)—balance .....	2,274,504.83
Earned—since February 1, 1936:	
Balance, January 31, 1939 .....	\$ 421,276.71
Net income for the year ended January 31, 1940, per accompanying state- ment .....	256,208.31

Total .....	\$ 677,485.02
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## Deductions:

Cash dividend paid .....	\$ 207,760.00
Adjustment of unearned discounts —prior years .....	11,167.63

Total deductions .....	\$ 218,927.63
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Balance, January 31, 1940 .....	458,557.39
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Total net worth .....	6,020,776.17
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TOTAL .....	<u>\$7,489,513.86</u>
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to cost of fixed property; lack of any indication of basis of valuing "dismantled plants"—a large item—or nature of "special reserve"; location of "supply inventory" and deposits and prepayments; use of non-descriptive title such as "sundry taxes"; combination of capital surplus resulting from "reacquisition of own shares" with "accumulated earnings."

*Comments on profit and loss and surplus statements:*

1. Inclusion of depreciation in operating charges is commendable.
2. "Discounts earned" is presumably a contra to otherwise overstated costs, and the "provision for cash discounts" is presumably an offset to gross revenue.
3. Segregation of small loss item is not helpful.
4. Illustrates practice of showing a distinct surplus statement, with dividends treated as charge to surplus rather than to current profits.

**Mandel Brothers, Inc.**

*Comments on balance sheet:*

1. Amount of inventory write-down, if any, should be shown. (Almost all companies neglect this requirement in using "the lower of cost or market.")
2. Bonds owned are shown at "market value." What is amount of cost, and how has adjustment been handled?
3. Failure to segregate nondepreciable assets and location of "prepaid expenses" may again be criticized.
4. "Accrued accounts" are presented in more detail than is necessary for a condensed statement.
5. Presumably reserve for "unearned carrying charges and rentals, etc." is a form of liability.
6. Note showing of dividends paid on balance sheet rather than on income statement.
7. "Adjustment of unearned discounts—prior years" is an unusual balance-sheet item.
8. Note use of term "net worth." This expression is common in textbooks but is not often found on published statements.

*Comments on income statement:*

1. Striking a "profit" balance before depreciation is common but definitely objectionable. Such headings as "gross income before depreciation" and "net income . . . before depreciation and Federal income tax" have no reasonable meaning.
2. Has the income-tax charge been carefully computed?

## MANDEL BROTHERS, INC.

### STATEMENT OF NET INCOME FOR THE YEAR ENDED JANUARY 31, 1940

NET SALES .....	\$18,089,250.03
COST OF GOODS SOLD AND OPERATING EXPENSES (exclusive of depreciation) .....	17,737,103.04
PROFIT FROM OPERATIONS BEFORE DEPRECIATION .....	\$ 352,146.99
INCOME CREDITS—interest, rentals, etc. ....	168,452.44
GROSS INCOME BEFORE DEPRECIATION .....	\$ 520,599.43
OTHER INCOME CHARGES (exclusive of Federal income tax) .....	5,979.04
NET INCOME FOR THE YEAR BEFORE DEPRECIATION AND FEDERAL INCOME TAX .....	\$ 514,620.39
DEPRECIATION OF PROPERTY AND IMPROVEMENTS .....	208,412.08
NET INCOME FOR THE YEAR BEFORE FEDERAL INCOME TAX..	\$ 306,208.31
FEDERAL INCOME TAX—estimated .....	50,000.00
NET INCOME FOR THE YEAR .....	<u>\$ 256,208.31</u>

### Clinchfield Coal Corporation

The 1939 annual report of this company includes no income statement although there is a brief paragraph in the president's note to stockholders stating the amount of the operating loss for the year and certain related data. The amount of loss also appears on the balance sheet. On pages 50–51 the balance sheet is reproduced as published. The statement is presented in revised form on pages 52–53.

There are a number of aspects of this statement which cannot be dealt with effectively merely by rearrangement. For example, a large amount is due from the Clinchfield Fuel Co. Is this a good asset? There is no indication of the value of the "Big Sandy" stock and receivables, and there are no data as to the nature and worth of the "deferred debits." The basis of the valuation of the "real estate" is not given. The reserve

# CLINCHFIELD COAL CORPORATION

## GENERAL BALANCE SHEET, DECEMBER 31, 1939

### ASSETS

#### PROPERTY AND PLANT:

Real Estate, less depletion of \$1,636,389.33.....	\$14,130,721.93
Development, less depletion of \$1,601,217.45.....	56,871.07
Plant and Equipment—at cost, less depreciation of \$6,262,377.44.....	906,789.78
Total Property and Plant.....	\$15,094,382.78

#### INVESTMENTS:

United States Treasury Bonds, 3½%, due March 15, 1941-43—at cost \$	25,359.37*
Big Sandy Fuel Corporation Stock—at cost.....	280,554.09
Other Stocks and Bonds—at cost.....	23,942.00
Total Investments.....	329,855.46

#### SINKING FUND:

Cash on Deposit with Trustee to Retire Preferred Capital Stock .....	20,948.25
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#### INVENTORIES:

Merchandise Stocks at Stores—at cost.....	\$ 90,226.39
Material and Supplies at Mines—at cost.....	56,049.30
Coal Stocks, Including Freight—at cost.....	3,239.47
Total Inventories.....	149,515.16

#### CURRENT ASSETS:

Cash—General .....	\$ 276,044.73
Bills Receivable .....	1,287.42
Clinchfield Fuel Company—Due for Coal.....	466,021.16
Sundry Accounts Receivable .....	96,023.59
Total Current Assets .....	839,426.90

#### DEFERRED DEBIT ITEMS:

Insurance Premiums—Unexpired Portion.....	\$ 16,869.75
Taxes Paid in Advance.....	105.00
Other Deferred Debit Items—at cost.....	169,016.77
Bills Receivable—Big Sandy Fuel Corporation.....	45,000.00
Account Receivable—Big Sandy Fuel Corporation .....	3,000.00
Total Deferred Debit Items.....	233,991.52

<b>TOTAL</b> .....	<b>\$16,668,120.07</b>
--------------------	------------------------

\* These Bonds, \$25,000 par value, deposited with Treasurer of Virginia to guarantee payment of our liability under Virginia Workmen's Compensation Act.

CONTINGENT ASSET: \$33,552.80 Trade Acceptances delivered to us by Clinchfield Fuel Company with their endorsements.

# CLINCHFIELD COAL CORPORATION

## GENERAL BALANCE SHEET, DECEMBER 31, 1939

### LIABILITIES

#### COMMON CAPITAL STOCK:

150,000 shares, par value \$100 per share.....	\$15,000,000.00	
Less 4,560 shares in Treasury.....	456,000.00	
145,440 shares in hands of Public.....		\$14,544,000.00

#### †PREFERRED CAPITAL STOCK:

13,935 shares, par value \$100 per share.....	\$ 1,393,500.00	
Less 8,041 shares in Treasury.....	804,100.00	
5,894 shares in hands of Public.....		589,400.00

#### CURRENT LIABILITIES:

Audited Vouchers, including Payrolls.....	\$ 154,094.76	
Individuals and Companies.....	25,601.85	
Federal Taxes.....	35,588.31	
Unclaimed Wages.....	663.80	
Total Current Liabilities.....		215,948.72

#### RESERVES:

For Personal Injury.....	\$ 85,590.39	
For Deferred Debit Items.....	115,000.00	
Total Reserves.....		200,590.39

#### DEFERRED CREDIT ITEMS:

Rents Collected in Advance.....	\$ 3,891.56	
Unadjusted Fire Loss.....	1,370.97	
Total Deferred Credit Items.....		5,262.53

#### PROFIT AND LOSS:

Income Appropriated for Redemption of Preferred Stock since July 1, 1918.....	\$ 914,561.32	
Loss for 1939.....	(160,321.94)	
Surplus.....	358,679.05	1,112,918.43

<b>TOTAL</b> .....		<u><u>\$16,668,120.07</u></u>
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† Accrued Dividends on Preferred Stock amount to \$357,569.33, which is \$60.66-2/3 per share on the stock outside the treasury of the Corporation on December 31, 1939.

CONTINGENT LIABILITY: Trade Acceptances for \$33,552.80 discounted by Clinchfield Fuel Company with our endorsements. At the date of this report these had all been paid.



## CLINCHFIELD COAL CORPORATION

General Balance Sheet, December 31, 1939

(Rewritten)

<i>Assets</i>			
<b>Current:</b>			
Cash	\$	276,094.73	
Clinchfield Fuel Co.—Due for Coal		466,021.16	
Other Accounts and Bills Receivable		97,311.01	
Inventories—			
Merchandise and Coal Stocks—Cost	\$	93,465.86	
Materials and Supplies at Mines—Cost		56,049.30	149,515.16
Unexpired Insurance and Prepaid Taxes (\$105.00)		16,974.75	\$ 1,005,916.81
<b>Investments and Funds:</b>			
United States Treasury Bonds, * 3½%, 3/15/41-43—Cost	\$	25,359.37	
Big Sandy Fuel Corporation Bills and Account Receivable		48,000.00	
Big Sandy Fuel Corporation Stock—Cost		280,554.09	
Other Stocks and Bonds—Cost		23,942.00	
Preferred Stock Sinking Fund		20,948.25	398,803.71
<b>Plant:</b>			
Real Estate	\$15,767,111.26		
Less Depletion	1,636,389.33	\$14,130,721.93	
Development	\$ 1,658,088.52		
Less Depletion	1,601,217.45	56,871.07	
Plant and Equipment—Cost	\$ 7,169,167.22		
Less Depreciation	6,262,377.44	906,789.78	15,094,382.78
Deferred Debits—Cost	\$ 169,016.77		
Less Reserve	115,000.00		54,016.77
			<u>\$16,553,120.07</u>

\* These bonds, par \$25,000, deposited with Treasurer of Virginia to guarantee payment of our liability under Virginia Workmen's Compensation Act.

Contingent asset: Trade acceptances amounting to \$33,552.80 delivered to us by Clinchfield Fuel Company with their endorsements.

for fire loss may conceivably be a form of liability, a contra to some asset item, or a form of surplus.

**Boston Wharf Company***Comments on balance sheet:*

1. Note absence of name of company and use of "statement of assets and liabilities" as general caption.

*Equities***Current Liabilities:**

Audited Vouchers, including		
Payrolls . . . . .	\$ 154,094.76	
Individuals and Companies. . . . .	25,601.85	
Federal Taxes . . . . .	35,588.31	
Unclaimed Wages . . . . .	663.80	
Rents Collected in Advance . . . . .	3,891.56	
Reserve for Personal Injury Claims . . . . .	85,590.39	\$ 305,430.67

Reserve for Unadjusted Fire Loss.		1,370.97
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**Capital and Surplus:****\*Preferred Capital Stock—**

13,935 shares authorized, par	
\$100 each . . . . .	\$ 1,393,500.00
8,041 shares in treasury. . . . .	804,100.00

5,894 shares outstanding . . . . .	\$ 589,400.00
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**\*Equity of Common Stock—**

150,000 shares authorized, par	
\$100 each . . . . .	\$15,000,000.00
4,560 shares in treasury. . . . .	456,000.00

145,440 shares outstanding . . . . .	\$14,544,000.00
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**Surplus—**

Appropriated for Redemption  
of Preferred Stock since  
7/1/1918 . . . . .

\$914,561.32  
198,357.11

1,112,918.43

\$15,656,918.43	16,246,318.43
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\$16,553,120.07

\* Accrued dividends on preferred stock amount to \$357,569.33, which is \$60.66 $\frac{2}{3}$  per share on stock outstanding December 31, 1939. The equity of the common stock as stated is subject to this arrearage.

Contingent liability: trade acceptances for \$33,552.80, discounted by Clinchfield Fuel Company with our endorsements. At the date this report is issued these had all been paid.

2. Fixed assets precede current.

3. Liabilities are sandwiched between capital stock and surplus, an unsatisfactory presentation which is becoming rare.

4. Statement is lacking in significant groupings and subheads.

*Comments on "profit and loss and surplus accounts":*

Account form of presentation is very unsatisfactory and is no longer common in published statements.

**Owens-Illinois Glass Company**

*Comments on balance sheet:*

1. Comparative form, although somewhat restrictive with respect to use of supplementary columns, is desirable.

2. Should "time deposits with insurance companies," which shows no change in amount, be reported as a current asset?

## STATEMENT OF PROFIT AND LOSS AND SURPLUS ACCOUNTS, DECEMBER 31, 1939

Dr.		Cr.	
Expense Account . . . . .	\$ 71,680.45	Balance Rent Account . . . .	\$628,549.19
Advertising . . . . .	396.88	" Interest Account . . . .	11,287.99
Legal Services . . . . .	649.07		
Insurance Premium Account . .	7,214.59		
Taxes Paid and Reserved . . .	204,544.06		
Bond Interest Account . . . .	67,540.00		
Net cost of all repairs and re-			
newals during the year and not			
otherwise provided for . . . .	3,973.70		
Credited "Reserves for Deprecia-			
tion and Obsolescence" . . . .	196,790.34		
Bad and doubtful accounts			
charged off . . . . .	24,552.95		
Amortization of Right of Way . .	1,044.62		
Earnings before Dividend to			
Surplus . . . . .	61,450.52		
	\$639,837.18		\$639,837.18

Dividends, June 30th and Decem-		Surplus, January 1, 1939 . . .	\$205,291.66
ber 22nd . . . . .	\$ 60,000.00	Earnings, 1939 . . . . .	61,450.32
Premiums on Company's own		Unused Balance of 1938	
bonds purchased and retired .	962.50	Tax Reserves . . . . .	405.42
Prepaid Commissions on leases			
proved to be worthless during			
the year . . . . .	1,324.35		
Additional Federal and State			
Taxes . . . . .	991.42		
Balance carried to New Account			
January 1, 1940 . . . . .	203,869.33		
	\$267,147.60		\$267,147.60

## STATEMENT OF ASSETS AND LIABILITIES, DECEMBER 31, 1939

ASSETS		LIABILITIES	
Land . . . . .	\$3,394,132.55	Capital Stock . . . . .	\$6,000,000.00
Buildings . . . . .	\$6,794,884.49	First Mortgage Bonds	
Party Walls . . . . .	79,857.92	Outstanding . . . . .	1,666,000.00
Equipment . . . . .	5,064.90	Bond Interest Accrued . . . .	16,660.00
	\$6,879,807.31	Rents and Taxes Paid in Advance	23,754.79
Less:		Reserve for State and Federal	
Reserves for		Taxes . . . . .	18,800.00
Depreciation and		Social Security Taxes Accrued .	961.49
Obsolescence . . . . .	3,479,445.31	Surplus . . . . .	203,869.33
Improvements under way . . .	8,108.13		
Cash . . . . .	688,122.77		
Accounts Receivable . . . . .	80,394.75		
Prepaid Items . . . . .	18,853.73		
Stock, N.Y., N.H., & H.R.R. Co.,			
1800 shares Common at \$1.00,			
900 shares Preferred at \$4.00 .	5,400.00		
*United States Government Bonds	328,312.50		
Miscellaneous Securities . . . .	6,359.18		
	\$7,930,045.61		\$7,930,045.61

\* Market value as of December 31, 1939, \$846,771.87.

3. Note use of cost basis for inventories, investments, and plant property.

4. Land should be segregated; amount of accrued amortization of "leased machinery" and of "licenses and patent rights" might be indicated. What patents are included under "patents and goodwill" reported at \$1.00?

5. Last three items under "deferred charges" appear to be current assets. "Manufacturing supplies and repair parts" might well be included under inventories.

6. Grand total of liabilities might be shown.

7. "Reserves for repairs and contingencies" probably have substantially the significance of appropriated earned surplus.

8. Explanation of "deferred income" not clear. If "amounts receivable" in later years are genuine receivables and not advances by buyers, there would be no occasion for a credit balance here unless income on deferred-payment sales is being reported on installment plan, and in this event the "deferred income" might better be reported as a contra to balance of installments receivable. See income-statement item "cash proceeds received in year from sale of patent rights and licenses." Query: where are the corresponding receivable balances shown on asset side?

*Comments on "profit and loss statement" and "earned surplus account":*

See page 60 for rearrangement of these exhibits as a single income statement.

In attempting to rewrite a published statement a number of questions usually arise, particularly as to the significance of certain items and groupings. In this case there is some doubt as to the propriety of including "sundry expenses and losses" under "Expenses," in view of lack of data as to nature and amount of losses. The treatment of "cash proceeds received in year from sale of patent rights and licenses" is likewise in doubt. The entire amount received is income only on the assumption that there are no associated costs or that such costs have been previously absorbed. There is also a question as to the reasonableness of treating capital stock taxes (amount not segregated here) as an income deduction comparable to income taxes. Incidentally the statement as published refers to only one figure for depreciation and amortization. Very likely this is the 1939 charge.

**Features of Balance-Sheet Practice.** As already explained, the term "equities" is seldom found in practice. "Liabilities" remains the most common heading for the equity side. The stock equity is usually captioned "capital and surplus," "capital stock and surplus," or simply "capital." Diamond Match Co. employs the heading "Liability to Stock-

# OWENS-ILLINOIS GLASS COMPANY

## CONSOLIDATED BALANCE SHEET DECEMBER 31, 1939 AND 1938

### ASSETS

	Dec. 31, 1939	Dec. 31, 1938
<b>CURRENT ASSETS:</b>		
Cash in banks and on hand.....	\$ 9,940,939.24	6,276,525.30
Time deposits with insurance companies.....	1,000,000.00	1,000,000.00
Marketable securities, at cost (quoted market value December 31, 1939—\$848,648).....	511,807.07	511,807.07
	<u>\$11,452,746.31</u>	<u>7,788,332.37</u>
Notes and accounts receivable—		
Trade.....	\$ 7,598,421.71	7,017,823.71
Other.....	173,758.42	170,645.05
	<u>\$ 7,772,180.13</u>	<u>7,188,468.76</u>
<u>Less:</u> Reserve for doubtful notes and ac- counts and for claims and allowances.....	936,661.55	993,584.86
	<u>\$ 6,835,518.58</u>	<u>6,194,883.90</u>
Inventories, at cost—		
Raw materials.....	\$ 2,535,871.68	2,542,992.75
Work in process.....	738,696.26	592,894.61
Finished goods.....	10,570,423.51	9,846,608.14
	<u>\$13,844,991.45</u>	<u>12,982,495.50</u>
Total current assets.....	<u>\$32,133,256.34</u>	<u>26,965,711.77</u>
<b>INVESTMENTS AND OTHER ASSETS, AT COST:</b>		
Investment in Owens-Corning Fiberglas Corporation..	\$ 3,117,296.14	3,050,796.14
Natural gas properties, one-half joint ownership.....	785,454.67	926,097.13
Sundry security investments.....	961,604.90	920,830.94
Mutual insurance and other deposits.....	320,019.51	329,384.30
Sundry loans, notes and accounts receivable.....	275,681.89	397,212.57
	<u>\$ 5,460,057.11</u>	<u>5,624,321.08</u>
<b>PROPERTY, AT COST, LESS DEPRECIATION:</b>		
Manufacturing plants—land, buildings and equipment.	\$73,337,996.02	74,423,753.73
Gas and oil properties—land, buildings, leases, wells, etc.	1,120,594.40	1,146,460.97
Other real estate and equipment.....	1,853,143.91	1,783,864.92
	<u>\$76,311,734.33</u>	<u>77,354,079.62</u>
<u>Less:</u> Reserves for depreciation and obsolescence	30,334,988.34	28,934,508.17
	<u>\$45,976,745.99</u>	<u>48,419,571.45</u>
Leased machinery—in process of amortization .....	283,727.21	390,284.19
	<u>\$46,260,473.20</u>	<u>48,809,855.64</u>
<b>LICENSES, PATENTS AND GOODWILL:</b>		
Licenses and patent rights—in process of amortization.	\$ 940,713.70	1,035,545.67
Patents and goodwill.....	1.00	1.00
	<u>\$ 940,714.70</u>	<u>1,035,546.67</u>
<b>DEFERRED CHARGES:</b>		
Prepaid rentals and improvements to leased properties	\$ 321,879.92	382,900.60
Unexpired insurance.....	171,335.10	171,328.74
Prepaid taxes, advertising and other expenses.....	329,758.75	364,806.56
Manufacturing supplies and repair parts.....	1,719,977.93	1,703,502.61
	<u>\$ 2,542,951.70</u>	<u>2,622,538.51</u>
	<u>\$87,337,453.05</u>	<u>85,057,973.67</u>

**CONTINGENT LIABILITIES:**

The Company's income tax returns are open for 1929 and subsequent years, the Bureau of Internal Revenue making contentions principally on the merits of the depreciation deductions taken, which would result in additional taxable income and a maximum liability for additional taxes and

# AND SUBSIDIARY COMPANIES

## CONSOLIDATED BALANCE SHEET DECEMBER 31, 1939 AND 1938

### LIABILITIES

	Dec. 31, 1939	Dec. 31, 1938
<b>CURRENT LIABILITIES:</b>		
Accounts payable (trade) and accrued expenses . . . . .	\$ 2,395,737.60	1,756,875.80
Customers' credit balances . . . . .	92,159.27	170,434.80
Accrued wages . . . . .	757,572.53	622,292.07
Accrued interest on debentures . . . . .	137,500.00	204,166.67
Sinking fund payment due August 1, 1940 . . . . .	1,000,000.00	
Accrued management bonus . . . . .	188,750.00	
Accrued property, sales and other state taxes . . . . .	329,467.07	273,679.42
Estimated federal taxes—income, capital stock, and social security taxes . . . . .	2,280,726.23	1,723,938.67
Total current liabilities . . . . .	<u>\$ 7,181,912.70</u>	<u>4,751,387.43</u>

**LONG TERM DEBT:**

Fifteen year 2¾% sinking fund debentures, due August 1, 1952. Redeemable as a whole on any interest date at a premium—sinking fund provisions call for a minimum annual payment of \$1,000,000 and permit a maximum of \$2,000,000 . . . . .	\$11,000,000.00	14,000,000.00
Amounts payable in years 1941 to 1946 for patent rights purchased . . . . .	191,500.00	259,500.03
	<u>\$11,191,500.00</u>	<u>14,259,500.03</u>

RESERVES FOR REPAIRS AND CONTINGENCIES . . . . .	\$ 1,239,180.29	1,404,732.89
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**DEFERRED INCOME:**

Amounts receivable in years 1940 to 1944 from sale of patent rights and licenses . . . . .	\$ 150,000.00	180,000.00
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**CAPITAL STOCK AND SURPLUS:**

Capital stock, \$12.50 par value— Authorized—3,000,000 shares Issued and outstanding—2,661,204 shares . . . . .	\$33,265,050.00	33,265,050.00
Paid-in surplus . . . . .	10,698,150.00	10,698,150.00
Earned surplus . . . . .	23,611,660.06	20,499,153.32
	<u>\$67,574,860.06</u>	<u>64,462,353.32</u>

**Note:** So long as any of the above debentures are outstanding the company may not pay any dividend except out of Consolidated Net Income subsequent to December 31, 1936. The Consolidated Earned Surplus at that date was \$18,430,943.24.

<u>\$87,337,453.05</u>	<u>85,057,973.67</u>
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Interest of approximately \$1,000,000. This liability is not admitted and no provision therefor has been made in the accounts.

There are also various actions pending for damages for alleged breach of contract and alleged infringements of patents, which, in the opinion of counsel, are not well founded and will be denied.

# OWENS-ILLINOIS GLASS COMPANY

## CONSOLIDATED PROFIT AND LOSS STATEMENT

### FOR THE YEARS ENDED DECEMBER 31, 1939 AND 1938

	Year ended December 31,	
	1939	1938
Net sales, royalties, and other operating revenues.....	\$82,025,092.92	75,106,755.50
Cost of sales, royalties paid, patent, development and other operating expenses (including depreciation of manufacturing plants and amortization of leased equipment, \$3,447,539.89).....	62,915,967.41	60,428,880.97
Manufacturing profit and net operating revenues.....	\$19,109,125.51	14,677,874.53
Selling, general and administrative expenses.....	\$ 7,396,528.06	7,019,258.90
Interest on debentures.....	424,888.89	523,638.90
Other interest.....	7,387.73	16,625.00
Provision for management bonus.....	188,750.00	
Discounts on sales.....	723,470.99	637,135.65
Provision for bad debts.....	78,660.15	195,776.55
Sundry expenses and losses.....	361,460.92	146,007.97
	<u>\$ 9,181,146.74</u>	<u>8,538,442.97</u>
	<u>\$ 9,927,978.77</u>	<u>6,139,431.56</u>
Other Income:		
Dividends.....	\$ 50,575.85	22,852.30
Interest.....	81,348.08	81,358.04
Discounts on purchases.....	253,863.88	184,151.84
Profit on sale of securities and other income.....	66,672.53	68,171.12
	<u>\$ 452,460.34</u>	<u>356,533.30</u>
	<u>\$10,380,439.11</u>	<u>6,495,964.86</u>
Cash proceeds received in year from sale of patent rights and licenses.....	37,500.00	303,219.06
Total income before providing for federal taxes.....	\$10,417,939.11	6,799,183.92
Provision for federal income and capital stock taxes.....	1,983,024.37	1,415,379.20
Net profit for year.....	<u>\$ 8,434,914.74</u>	<u>5,383,804.72</u>
Number of shares outstanding at December 31.....	2,661,204	2,661,204
Earnings per share.....	\$ 3.17	2.02

holders." Apparently an increasing number of companies are following the practice of dividing the right-hand side into two main divisions headed "liabilities" and "capital," respectively. Among prominent companies adopting this form in recent statements are American Ice Co.,

# AND SUBSIDIARY COMPANIES

## CONSOLIDATED EARNED SURPLUS ACCOUNT

### FOR THE YEARS ENDED DECEMBER 31, 1939 AND 1938

	Year ended December 31,	
	1939	1938
BALANCE AT BEGINNING OF YEAR.....	\$20,499,153.32	19,107,154.60
<u>Add:</u>		
Net profit for year.....	8,434,914.74	5,383,804.72
	<u>\$28,934,068.06</u>	<u>24,490,959.32</u>
<u>Deduct:</u>		
Cash dividends paid—		
In 1939—\$2.00 per share.....	5,322,408.00	
In 1938—\$1.50 per share.....		3,991,806.00
BALANCE AT END OF YEAR.....	<u>\$23,611,660.06</u>	<u>20,499,153.32</u>

Burns Bros., Crown Zellerbach Corporation, and Kroger Grocery & Baking Co.

A number of the recommendations as to location and grouping of balance-sheet items made in the preceding chapter are honored in practice more in the breach than in the observance. Current prepayments are usually included in "deferred charges" as a last item on the asset side. Occasionally a treatment approximating that recommended is found. Recent statements of Borg-Warner Corporation and National Cash Register Co., for example, show "prepaid expenses" immediately following "current assets." Pillsbury Flour Mills Co. lists "prepaid expenses" after "other current funds."

In a large majority of cases nondepreciable assets are not segregated, but an increasing number of companies seem to be following the proper treatment. Depreciable and depletable assets and reserves are seldom separated. Almost never does one find a statement prepared in such manner as to show clearly just what the effect of an appraisal is on the plant account and the appreciable depreciation allowance. Another improper treatment which seems to be universal is the inclusion of bond discount with actual bond-issue costs on the asset side.

The extent to which current assets and current liabilities are subdivided



**OWENS-ILLINOIS GLASS COMPANY**  
**Comparative Consolidated Income Statement**  
**Years Ended December 31, 1938 and 1939**  
 (Rewritten)

	1938	1939
<i>Net Sales, royalties, and other operating revenues</i> (after provision for bad debts of \$195,776.55 in 1938 and \$78,660.15 in 1939) . . . . .	\$74,273,843.30	\$81,222,961.78
<i>Expenses:</i>		
Cost of sales (including depreciation of manufac- turing plants and amortization of leased equip- equipment, \$3,447,539.89) . . . . .	\$60,244,729.13	\$62,662,103.55
Selling, general, and administrative expenses . . . . .	7,019,258.90	7,396,528.06
Provision for management bonus . . . . .		188,750.00
Sundry expenses and losses . . . . .	146,007.97	361,460.92
	<u>\$67,409,996.00</u>	<u>\$70,608,842.51</u>
<b>Net Operating Revenue</b> . . . . .	<u>\$ 6,863,847.30</u>	<u>\$10,614,119.27</u>
<i>Other Income:</i>		
Interest and dividends . . . . .	\$ 104,210.34	\$ 131,923.93
Profit on sale of securities and other income . . . . .	68,171.12	66,672.53
Cash proceeds received in year from sale of patent rights and licenses . . . . .	303,219.06	37,500.00
	<u>\$ 475,600.52</u>	<u>\$ 236,096.46</u>
<i>Total Net Income</i> . . . . .	<u>\$ 7,339,447.82</u>	<u>\$10,850,215.73</u>
Interest on debentures (and other interest of \$16,625.00 in 1938 and \$7,387.73 in 1939) . . . . .	540,263.90	432,276.62
<i>Net before Federal Taxes</i> . . . . .	<u>\$ 6,799,183.92</u>	<u>\$10,417,939.11</u>
Provision for Federal income and capital stock taxes . . . . .	\$ 1,415,379.20	\$ 1,983,024.37
<b>Net Profit to Stockholders.</b> . . . .	<u>\$ 5,383,804.72</u>	<u>\$ 8,434,914.74</u>
Cash dividends (\$1.50 per share in 1938 and \$2.00 in 1939) . . . . .	3,991,806.00	5,322,408.00
<i>Addition to Surplus</i> . . . . .	<u>\$ 1,391,998.72</u>	<u>\$ 3,112,506.74</u>
Earned surplus at beginning of year. . . . .	19,107,154.60	20,499,153.32
Earned surplus at end of year (see balance sheet)	<u>\$20,499,153.32</u>	<u>\$23,611,660.06</u>

varies between companies. On the whole, practice is fairly satisfactory at this point. Fixed assets are usually shown in very condensed fashion, especially among the larger companies.

Only occasionally is a grand total of liabilities (in the narrow sense) clearly shown. Showing of an unanalyzed group of reserves on the equity side is still common. The practice of sandwiching liabilities proper between capital stock and surplus is disappearing among industrial companies. Often, however, sufficient care is not taken to show a total of the

common-stock equity or to distinguish sharply between amount invested and accumulated profits. The practice of showing treasury stock as an offset on the equity side is becoming standard, although the detailed treatment varies. The following excerpt from a recent statement of Midland Steel Products Co. illustrates the practice of showing the cost of treasury shares as a suspense contra to the total of the stock equity as otherwise determined:

**Capital Stock and Surplus:**

Capital stock:

First preferred stock, 8% cumulative, par value \$100.00 per share, redeemable in liquidation at \$110.00 per share:

Authorized and issued  
96,930 shares (including  
2,005 shares in treasury) \$9,693,000.00

\$2 non-cumulative dividend stock, without par value, not entitled to any payment in liquidation:

Authorized and issued  
96,930 shares (including  
39,230 shares in treasury) 9,693.00

Common stock, without par value:

Authorized and issued  
242,325 shares (including  
7,410 shares in treasury) 2,423,250.00 \$12,125,943.00

Earned surplus (restricted to the extent of \$992,742.58 representing cost of treasury stock).

3,248,973.95

\$15,374,916.95

Less treasury stock—at cost:

First preferred stock—2,005 shares \$ 160,644.02

\$2 non-cumulative dividend stock—39,230 shares 679,271.48

Common stock—7,410 shares. 152,827.08 \$92,742.58 \$14,382,174.37

Forthright presentation of deficit is somewhat rare; there is usually evidence of a desire to "sugar-coat the pill." Thus the Indian Refining Co. shows "Earned surplus (deficit) at December 31, 1939—\$13,564,715.54" on the equity side of the balance sheet. In a recent report of Lima Locomotive Works, Inc., the deficit is shown as "Earned Surplus

**Account (Deficit)"** and in a balance-sheet note there is the following interesting statement relative to the setting up of a reserve for contingencies: "The reserve . . . has been provided from capital surplus . . . and by a charge to earned surplus (deficit) for the current year in the amount of \$72,000." Certain-teed Products Corporation employs the title "Deficiency in earned surplus" to describe an accumulated deficit.

The following excerpt from a recent statement of the Butterick Co., Inc. illustrates a candid reporting of deficit.

**Capital Stock and Deficit:**

5% preferred stock, par value		
\$50.00 per share (see Note 3)—		
Authorized—40,000 shares		
Issued—32,175-20/100 shares.	\$1,608,760.00	
Reserved for issuance in connection with reorganization of predecessor company—1,619-14/100 shares . . . . .	80,956.94	\$1,689,716.94

Common stock, no par value—at assigned value less reorganization expenses and adjustments (net) as of date of reorganization—		
Authorized—100,000 shares	44,880.40	
Issued—86,327-50/100 shares		
Reserved for issuance in connection with reorganization of predecessor company—3,862-58/100 shares		

	\$1,734,597.34	
Less—Deficit . . . . .	1,559,812.10	174,785.24

Burns Bros. shows a "consolidated statement of deficit" in its 1939 report. Under "Capital" in the balance sheet the "deficit" exceeds the total of other items by a substantial amount, and this excess is labeled "Deficiency of capital represented by excess of liabilities and reserves over capital."

References to contingent liabilities and purchase commitments are becoming more numerous and extended in published reports. The following example of such a reference is taken from the notes attached to the 1939 balance sheet of Studebaker Corporation:

Note 1: The Corporation is contingently liable in connection with distributors' and dealers' wholesale time paper held by finance companies, which paper is secured by new cars and trucks. Past experience has shown the losses under this plan to be negligible.

The Corporation has been notified by the Federal Treasury Department of proposed additional assessments of \$715,490.83 for income and excess-profits for 1936 and 1937, and \$825,180.59 for surtax on undistributed profits for 1936 and 1937. The general basis for these proposed assessments is the Department's contention that the cost to the Corporation of the assets taken over by it on March 9, 1935, should be measured by the quoted market prices of the Corporation's securities at that time, and that such cost so determined should be the basis for determining profits and depreciation. The management is of the opinion that the contentions of the Department are incorrect, and it is the intention of the Corporation to contest the additional assessments proposed. Counsel for the Corporation are of the opinion that the ultimate liability of the Corporation in respect of such taxes will not in any event be a material amount in excess of available reserves. In regard to the surtax on undistributed profits for 1936 and 1937, counsel are of the opinion that the Corporation is not liable for such tax because of the restrictions upon the payment of dividends contained in the Indenture under which the Corporation's debentures were issued.

**Features of Income-Statement Practice.** A survey of current published reports shows that the practice of omitting gross revenue and production costs—or all expenses—is still followed by a considerable number of companies. In a recent report of Celluloid Corporation, for example, the "profit and loss account" begins with "profit from operations before depreciation." The 1939 "profit and loss" account of B. Kuppenheimer & Co., Inc. begins with "gross profit, after deducting all discounts and cost of sales."

Occasionally, among the less important and less successful companies, no formal income statement is included in the annual report to stockholders. This is decidedly objectionable practice, even though it is standard policy among most banking companies.

The degree to which gross revenues and operating expenses should be elaborated on the face of the income sheet remains a moot point. Most stockholders are not greatly interested in departmental revenue data, except perhaps when the company is involved in two or more very different kinds of business. Subdivision of revenue, moreover, is not very significant unless there is corresponding classification of operating costs. No doubt there is something to be said for segregation of selling costs and general administrative charges, even in the condensed statement. Depreciation should be segregated, at least to the extent of a parenthetic showing, so that there can be no doubt as to the amount and treatment of this important charge.

The extract from a published statement of a subsidiary of A. O. Smith Corporation shown on page 64 is illustrative of the details of cost often shown in statements of small companies. It should be borne in mind that it is always possible to include in the report a supplementary schedule in which expenses may be classified as fully as seems desirable.

**Operating Cost:**

Superintendence . . . . .	\$ 1,573.33	
Mine labor . . . . .	19,590.95	
Contract mining . . . . .	3,008.05	
Mine supplies . . . . .	3,511.62	
Lumber and timber . . . . .	1,140.46	
Gasoline and oil . . . . .	1,394.57	
Feed—work animals . . . . .	289.78	
Repairs . . . . .	902.51	
Workmen's compensation insurance . . . . .	1,340.32	
Geology, engineering, sampling and assaying . . . . .	798.53	
Current mine development . . . . .	1,116.56	
	<hr/>	
	\$34,666.68	
Depreciation . . . . .	359.58	
Amortization of leasehold . . . . .	3,125.00	
Administrative expense . . . . .	3,061.64	
Capital stock tax . . . . .	75.00	41,287.90
	<hr/>	<hr/>

Exclusion of depreciation from operating charges is still very common practice, even among large and successful companies. On the other hand it is gratifying to note that a considerable number of companies report depreciation as a revenue charge in a clear-cut manner. In recent statements of Vanadium Corporation of America, for example, both depreciation and depletion are included directly in "production costs (affecting both cost of goods sold and inventories) and appropriate expense classifications." Electric Auto-Lite Co. shows depreciation as an addition to "Materials, Labor and Burden" under "Manufacturing Cost."

The striking of intermediate balances which are almost meaningless is very common. For example, the National Gypsum Co. in a recent statement shows five successive intermediate "profit" figures in bold-face capitals, as follows: "gross profit before depreciation and depletion"; "gross profit"; "operating profit"; "profit before income taxes"; "profit before exchange adjustment." Here is accounting for profits running wild. If the procedure were pushed a bit further one might label sales as "profit before any deductions." In some cases one finds a series of balances struck which are given no description whatever, or are referred to simply as "balance." This is clearly undesirable practice.

There seems to be some increase in the number of corporations that follow the commendable practice of presenting income and related surplus data in combined form. It remains standard procedure, however, to show surplus debits and credits in one or more separate statements or schedules. This is not seriously objectionable where the surplus data follow directly after the income statement and there is a clear indication of the connection.

**Illustrative Schedules and Tables.** The following are typical schedules and supplementary tables taken from published corporate reports:

(From 1939 report of Wheeling Steel Corporation)

## INVENTORIES

The following statement shows a comparison of inventories for the past three years divided into major classifications:

	<i>Dec. 31st 1939</i>	<i>Dec. 31st 1938</i>	<i>Dec. 31st 1937</i>
Raw materials . . . . .	\$ 8,096,813	\$ 7,263,609	\$ 8,756,289
Manufacturing supplies and stores . . . . .	5,005,866	4,952,464	5,477,531
Semi-finished materials . . . . .	4,803,545	5,347,588	4,935,601
Finished materials . . . . .	15,435,719	13,198,612	14,434,221
Total . . . . .	<u>\$33,341,943</u>	<u>\$30,762,273</u>	<u>\$33,603,642</u>

The valuation of inventories at the beginning and the end of the year was upon the "standard cost" basis which has been consistently followed since its adoption January 1, 1931, when the basis of "cost or market, whichever lower" was discontinued. This basis of valuation provides that finished and semi-finished materials are priced in the inventory at a predetermined cost figured from the actual experience obtained during a period of normal operations with adjustments with respect to current market conditions. The basis of pricing raw materials, supplies and stores was at average cost following the established policy of the Corporation.

Rolls, molds, stools, annealing equipment, small spares and similar replacement stores are classified as inventories at depreciation values.

(From 1939 report of International Harvester Co.)

## PROPERTY

Balance at October 31, 1938 . . . . .		\$222,015,873
Deduct:		
Property sold, dismantled, etc. . . . .	\$1,154,709	
Depletion of iron ore and coal . . . . .	73,961	1,228,670
		<u>\$220,787,203</u>
Add:		
Capital expenditures during 1939:		
Farm implement works and twine mills . . . . .	\$1,265,257	
Motor truck and tractor plants . . . . .	6,728,508	
Branch houses and service stations . . . . .	821,457	
Mines, furnaces, steel mills, etc. . . . .	169,239	8,984,461
		<u>319,685</u>
Sundry reclassifications . . . . .		
Balance at October 31, 1939, before deducting reserve for depreciation . . . . .		<u>\$230,091,349</u>

## RESERVE FOR DEPRECIATION

The annual deductions from earnings for depreciation provide for the impairment and consumption of the capital assets utilized in production and distribution. Such depreciation is based on rates confirmed by experience in this industry.

Balance at October 31, 1938 . . . . .	\$106,991,834
Deduct depreciation on properties sold, dismantled, etc. . . . .	742,047
	<u>\$106,249,787</u>
Add provision for 1939 . . . . .	7,604,519
Balance at October 31, 1939 . . . . .	<u>\$113,854,306</u>

(From 1939 report of Youngstown Sheet and Tube Co.)

## MAINTENANCE, REPAIRS AND RENEWALS

The following table shows a classification of the amount of expenditures made during the year for above purposes on the various groups of operating properties:

## Expenditures During Year 1939

<i>Expended on</i>	<i>Ordinary Maintenance and Repairs</i>	<i>Relining Blast Furnaces, Rebuilding Other Furnaces and Renewals</i>	<i>Total</i>	<i>Total Expenditures in 1938</i>	<i>Increase in 1939</i>
Manufacturing Properties . . . . .	\$7,227,562.29	\$1,367,571.87	\$8,595,134.16	\$6,577,990.55	\$2,017,143.61
Coal Mining Properties . . . . .	401,314.53	.....	401,314.53	304,903.65	96,410.88
Iron and Zinc Ore Mining Properties . . . . .	183,489.36	.....	183,489.36	122,001.63	61,487.73
Housing Facilities for Em- ployees . . . . .	78,469.04	2,550.00	81,019.04	69,636.69	11,382.35
Other Miscellaneous Prop- erties . . . . .	44,946.92	.....	44,946.92	43,552.24	1,394.68
<b>Total . . . . .</b>	<b>\$7,935,782.14</b>	<b>\$1,370,121.87</b>	<b>\$9,305,904.01</b>	<b>\$7,118,084.76</b>	<b>\$2,187,819.25</b>

(From 1939 report of Borg-Warner Corporation)

## TAXES

The corporation's accrual of Federal, Dominion, State, County and City taxes for the year 1939 amounted to \$2,771,427.80. Of this total, \$731,858.49 consisted of payments or accruals to the Federal and State governments for unemployment and old age insurance.

It will be interesting to note that the total taxes accrued in 1939 amount to \$1.18 per share on the issued common stock of the corporation.

The following table, showing taxes paid or accrued in each year, from 1929 through 1939, will illustrate the growth of the tax burden:

	<i>Income Excess Profits &amp; Undis- tributed Earnings Taxes</i>	<i>Capitol Stock and Franchise</i>	<i>Social Security</i>	<i>Property and Miscel- laneous</i>	<i>Total</i>
1929	\$ 938,275.01	\$ 21,512.60		\$ 208,085.34	\$ 1,167,872.95
1930	365,357.71	55,120.17		242,142.85	662,620.73
1931	150,873.89	59,843.91		296,645.39	507,363.19
1932	.....	33,689.39		282,227.56	315,916.95
1933	258,283.90	74,368.24		332,631.67	665,283.81
1934	788,913.60	142,793.07		258,127.24	1,189,833.91
1935	1,189,086.81	129,380.96		271,429.51	1,589,897.28
1936	2,279,640.61	164,310.22	\$ 194,071.87	255,839.85	2,893,862.55
1937	2,167,255.34	163,762.84	715,267.80	325,011.68	3,371,297.66
1938	158,691.94	156,625.01	529,948.28	347,603.92	1,192,869.15
1939	1,541,026.42	161,643.23	731,858.49	336,899.66	2,771,427.80
<b>Total</b>					
11 Yrs.	<b>\$9,837,405.23</b>	<b>\$1,163,049.64</b>	<b>\$2,171,146.44</b>	<b>\$3,156,644.67</b>	<b>\$16,328,245.98</b>

(From 1939 report of Republic Steel Corporation)  
 FUNDED AND OTHER LONG-TERM DEBT  
 December 31, 1939

	<i>Total Amount Outstanding</i>	<i>Amount in Treasury of Corporation</i>	<i>Amount Outstanding With Public</i>
Republic Steel Corporation General Mortgage 4½% Bonds, Series B—due February 1, 1961 . . . . .	\$41,389,000.00	\$1,190,000.00	\$40,199,000.00
Republic Steel Corporation General Mortgage 4½% Bonds, Series C—due November 1, 1956 . . . . .	23,430,000.00	45,000.00	23,385,000.00
Republic Steel Corporation Purchase Money First Mortgage Convertible 5½% Bonds—due November 1, 1954 . . . . .	14,242,900.00	.....	14,242,900.00
The Central Steel Company Twenty-year Eight Per Cent. First Mortgage Sinking Fund Gold Bonds—due November 1, 1941 . . . . .	2,133,400.00	217,700.00	1,915,700.00
Gulf States Steel Company First (Closed) Mortgage Sinking Fund 4½% Bonds—due October 15, 1961 . . . . .	6,443,000.00	45,000.00	6,398,000.00
Property purchase obligation—unsecured (no interest) . . . . .	1,387,271.64	.....	1,387,271.64
Total . . . . .	<u>\$89,025,571.64</u>	<u>\$1,497,700.00</u>	<u>\$87,527,871.64</u>

**Extended Comparative Statements.** A considerable number of companies have adopted the interesting and helpful practice of including condensed comparative statements covering a considerable period in their annual reports. For example, Borg-Warner Corporation in a recent report shows comparative balance sheet and income account, in some detail, covering the entire history of the company to date. A condensed "record of earnings" covering a period of twenty-one years appears in the 1939 report of the American Smelting and Refining Co. An interesting example of extended comparative statements is found in the 1939 report of the Caterpillar Tractor Co. In addition to columnar comparative balance sheet and profit and loss statement covering the entire history of the Company, parallel analyses of "surplus account" and "dividend history" are set up for the same period, including such supplementary data as number of stockholders per period, shares outstanding, and dividend rate per share.

**Explanatory Statements.** Serious efforts have been made by a number of companies to make their financial statements interesting and intelligible to the rank and file of stockholders and employees. The "explanatory" statements of Caterpillar Tractor Co. shown on pages 68-69 are illustrative of this tendency.



## ANNUAL REPORT TO "CATERPILLAR" STOCKHOLDERS AND

### Explanatory Statement of Assets, Liabilities and Net Worth at December 31, 1939

<b>Assets</b> —consisting of properties owned and amounts owed to this company by others:	
Cash — in banks in the principal financial centers of the United States and in cities and towns in which the company has a factory or parts distributing depot. The amount is equivalent to the cash required for about three weeks' operations...	\$ 3,642,357.45
Notes and accounts receivable — consisting of amounts due from distributors, dealers and their customers on their purchases of "Caterpillar" products. This is approximately equal to average current sales for 48 days.....	7,737,181.75
Inventories — of rough material, partially manufactured products, finished machines and supplies. These require large investment as tractors and other machines must be built in advance of sale. In low sales months, surplus stocks of products are manufactured and accumulated in anticipation of later demand. The amount on hand is usually equivalent to several months' sales.....	19,383,113.44
Patents, trade-marks and goodwill — combine to induce customer preference for "Caterpillar" products, which has been created by the satisfactory performance of our machines. This preference has a very great real value to "Caterpillar" but because that value cannot be calculated, it is carried in the company's accounts at only a nominal amount.....	1.00
Land, buildings, machinery and equipment — are the properties in which and with which "Caterpillar" products are made, stored and operations carried on. The value here shown is after deducting allowances for the accumulated wear and deterioration of the properties to date.....	19,099,576.72
Prepaid insurance, taxes, etc. — are expenses paid in advance of use or benefit which will be absorbed in operating expenses of future periods.....	35,956.81
Total value of properties owned.....	<u>\$49,898,187.17</u>
<b>Liabilities</b> —consisting of amounts due to others for:	
Money borrowed from banks to be repaid over the next five years.....	\$ 5,000,000.00
Materials, supplies, etc. and equipment purchased.....	2,842,607.76
Salaries and wages due to employees, etc.....	704,703.66
Federal taxes.....	1,619,999.72
Preferred stock called for redemption on November 25, 1939 not yet presented by the stockholders for retirement, and unpaid dividends on that stock.....	530,448.75
Total amount owed to others.....	<u>\$10,697,759.89</u>
<b>The difference is the net worth</b> of the company as shown by its books of account and is owned by approximately 16,800 stockholders and is represented by 1,882,240 shares of capital stock outstanding.....	
	\$39,200,427.28

# EMPLOYEES FOR THE YEAR ENDING DECEMBER 31, 1939

## Explanatory Statement of Income, Expenses, Profits and Dividends for the Year 1939

<b>income</b>	received from customers for—	
	"Caterpillar" products sold to them .....	\$58,432,921.32
	Interest on unpaid balances owed by them .....	269,088.09
		<hr/>
		\$58,702,009.41
<b>deduct:</b>	Costs and expenses for—	
	Manufacture, distribution and advertisement of "Caterpillar" products; operation, maintenance and repair of plant and equipment; and administration of the company's operations	
	Materials and supplies purchased from others, etc. ....	\$30,668,873.60
	Wages and salaries—paid to all "Caterpillar" employees .....	18,852,101.72
	Depreciation—estimated to be the cost of the wear and deterioration of plant and equipment .....	2,541,085.96
	Federal taxes—on the company's net income, on the valuation of its capital stock, and on the wages and salaries of employees .....	1,665,063.46
	Interest—paid to banks and others for borrowed money .....	36,448.48
		<hr/>
		\$53,763,573.22
	Deduct: Charges included above for inventories purchased or manufactured in excess of sales requirements for the year .....	1,066,454.18
		<hr/>
		52,697,119.04
<b>net profit</b>	for the year—being the difference between the income and the costs and expenses of producing that income .....	\$ 6,004,890.37
<b>dividends</b>	—paid to stockholders in cash as compensation for the use of their savings invested in the company .....	4,337,337.25
		<hr/>
<b>balance</b>	—retained in the business for future requirements .....	\$ 1,667,553.12
		<hr/>

### III

#### **PRESCRIBED AND RECOMMENDED STATEMENTS**

**Prescribed Accounts and Statements.** Financial reporting, as noted in the preceding chapter, has developed most rapidly in recent years in the industrial field, the field in which government control of records and statements is still relatively slight and in which the influence of the public accountant has been most marked. Prescribed accounting, nevertheless, is in effect in a number of important areas of business, and this condition cannot be ignored in any broad examination of present-day practice. In making tax returns and in other special connections, moreover, all kinds of enterprises are required to submit statements in prescribed form.

The outstanding examples of prescribed accounting are found in transportation and other public utilities. In the effective regulation of rates, it has long been recognized, a necessary instrument is a substantial measure of control over the mechanism of account-keeping and financial reporting. In 1906 the Interstate Commerce Commission was given the authority to prescribe uniform accounts and standardized reports for the railways and other utilities engaged in interstate business, and to exercise strict supervision over all accounting and statistical practices. The resulting classifications of accounts and rules of procedure have furnished the basis for the accounting requirements laid down by the various state public-service commissions and have also exerted a marked influence upon accounting theory and practice generally, particularly in the earlier years of their use. A more recent development is found in the control of utility accounts and reports exercised by the Federal Power Commission and the Federal Communications Commission. The Federal Power Commission has prescribed a "uniform system of accounts for public utilities and licensees" (corresponding closely to the system prepared and endorsed by the National Association of Railroad and Utilities Commissioners) and forms of annual reports to be used by the power companies in submitting data to the Commission. Similar steps have been taken by the Federal Communications Commission with respect to the utilities under its jurisdiction. These newer systems include some features which

represent interesting departures from those developed by the Interstate Commerce Commission.

Another field in which the accounts employed and statements issued are noticeably affected by governmental control is banking. All banks in the Federal Reserve System must issue reports of condition, in approved form, as called for by the comptroller of the currency, and the reporting of other banks is under the direction of the state authorities. Banks are also subject to examination by government auditors and a considerable effect upon the accounting procedures employed is exerted from this direction. Insurance companies, building and loan associations, trust companies, and other types of financial institutions are likewise more or less closely supervised by governmental agencies, with consequent influence upon the records kept and statements issued.

Nowadays many business activities are undertaken by governments or governmental agencies. Important examples are the hydro-electric projects such as are included in the Tennessee Valley Authority. Needless to say, the accounting systems of enterprises operated by government are completely under governmental control.

Upon the occasion of organization or new financing every corporation is required to furnish statements, in prescribed form, to the appropriate office or commission of the state under whose laws the company is organized. If a corporation desires to distribute a security other than in its home state it must prepare an elaborate registration statement, in prescribed form, for presentation to the Securities and Exchange Commission and must secure the Commission's approval before the issue can be offered for sale on an interstate basis. All corporations subject to taxation must prepare and submit the necessary forms and returns, of which the most extensive are those required for purposes of Federal income and profits taxes.

Examples of prescribed statement forms are given later in this chapter, with comments.

**Recommended Statements.** The American Institute of Accountants, in the bulletin entitled "Examination of Financial Statements by Independent Public Accountants," has issued recommended forms for balance sheet and "profit and loss statement." Model forms of statements are also presented in the monograph "Financial Statements" recently published by the American Accounting Association. Such recommendations, and many other less formal and complete suggestions, reflect the present acute interest of organized accountants in the problem of effective reporting.

Another source of recommended statements is found in credit organizations such as the National Association of Credit Men. Many banks

and other institutions granting short-term loans have also prepared special forms for the use of borrowers. Numerous trade associations throughout the business field have taken an active interest in accounting and have developed standard classifications of accounts and forms of statements for the use of member organizations. Governmental bureaus and university bureaus of research have likewise taken a hand in the work of developing and sponsoring systems of accounts and reports for particular fields.

In some circumstances a private agency is in a position to require the use of a special form of statement. Stock exchanges, for example, ordinarily compel all members to make reports on regular forms furnished by the exchange.

A number of types of recommended statements are reproduced in the illustrations given in the following pages. As appears from the attached comments, such statements are in general less satisfactory than might well be expected.

**Statements Prescribed by Interstate Commerce Commission.** On pages 72-75 are reproduced the forms of balance sheet and income statement prescribed by the Interstate Commerce Commission in the "Uniform System of Accounts" for Class I "Motor Carriers of Passengers."

These forms are somewhat more in line with present-day practice in the industrial field than are those prescribed earlier by the Commission for the railways. Among points deserving mention in the case of the balance sheet are those listed on pages 76-77.

### FORM OF BALANCE SHEET STATEMENT

(See instructions 17 and 18)

#### *Asset Side*

#### CURRENT ASSETS:

1000. Cash.....	\$.....
1020. Working Funds.....	.....
1040. Special Deposits.....	.....
1060. Temporary Cash Investments.....	.....
(a) Pledged.....	\$.....
(b) Unpledged.....	.....
1080. Notes Receivable.....	\$.....
1100. Receivables from Associated Companies.....	.....
1120. Accounts Receivable.....	.....
Less: Reserve for Uncollectible Accounts.....	.....
1140. Subscribers to Capital Stock.....	.....
1160. Interest and Dividends Receivable.....	.....
1180. Material and Supplies.....	.....
1190. Other Current Assets.....	.....
<b>Total Current Assets.....</b>	<b>.....</b>

**TANGIBLE PROPERTY:**

1200. Carrier Operating Property.....	-----	
Less: Reserve for Depreciation and Amortization.....	-----	
	=====	
1300. Carrier Operating Property Leased to Others.....	-----	
Less: Reserve for Depreciation and Amortization.....	-----	
	=====	
1400. Non-Carrier Operating Property.....	-----	
Less: Reserve for Depreciation and Amortization.....	-----	
	=====	
1450. Non-Operating Property.....	-----	
Less: Reserve for Depreciation and Amortization.....	-----	
	=====	
Total Tangible Property.....	-----	
	=====	

**INTANGIBLE PROPERTY:**

1500. Organization, Franchises and Permits.....	-----	
Less: Reserve for Amortization.....	-----	
	=====	
1550. Other Intangible Property.....	-----	
Less: Reserve for Amortization.....	-----	
	=====	
Total Intangible Property.....	-----	
	=====	

**INVESTMENT SECURITIES AND ADVANCES:**

1600. Investments and Advances—Associated Companies.....	-----	\$-----
(a) Pledged.....	-----	\$-----
(b) Unpledged.....	-----	-----
	=====	
1650. Other Investments and Advances.....	-----	
(a) Pledged.....	-----	\$-----
(b) Unpledged.....	-----	-----
	=====	
Total Investment Securities and Advances.....	-----	
	=====	

**SPECIAL FUNDS:**

1701. Sinking Funds.....	-----	
1751. Depreciation Funds.....	-----	
1781. Miscellaneous Special Funds.....	-----	
	=====	
Total Special Funds.....	-----	
	=====	

**DEFERRED DEBITS:**

1800. Prepayments.....	-----	
1880. Unamortized Debt Discount and Expense.....	-----	
1890. Other Deferred Debits.....	-----	
	=====	
Total Deferred Debits.....	-----	
	=====	

**MISCELLANEOUS DEBIT ITEMS:**

1900. Discount on Capital Stock.....	-----	-----
1910. Commission and Expense on Capital Stock.....	-----	-----
1920. Reacquired Securities—		
(a) Pledged.....	\$.....	-----
(b) Unpledged.....	-----	-----
1990. Nominally Issued Securities—		
(a) Pledged.....	-----	-----
(b) Unpledged.....	-----	-----
Total Miscellaneous Debits.....	-----	=====
Total Assets.....	-----	=====

CONTINGENT ASSETS (NOT INCLUDED ABOVE)..... \$.....

*Liability Side***CURRENT LIABILITIES:**

2000. Notes Payable.....	\$.....	-----
2020. Matured Equipment and Long-Term Obligations.....	-----	-----
2030. Payables to Associated Companies.....	-----	-----
2050. Accounts Payable.....	-----	-----
2070. Wages Payable.....	-----	-----
2080. Unredeemed Tickets.....	-----	-----
2090. C. O. D.'s Unremitted.....	-----	-----
2100. Dividends Declared.....	-----	-----
2120. Taxes Accrued.....	-----	-----
2150. Interest Accrued.....	-----	-----
2160. Matured Interest.....	-----	-----
2190. Other Current Liabilities.....	-----	-----
Total Current Liabilities.....	-----	=====

**ADVANCES PAYABLE:**

2200. Advances Payable—Associated Companies.....	-----	-----
2250. Other Advances Payable.....	-----	-----
Total Advances Payable.....	-----	=====

**EQUIPMENT AND OTHER LONG-TERM OBLIGATIONS:**

2300. Equipment Obligations.....	\$.....	-----
Less: Reacquired and Nominally Issued.....	-----	-----
(a) Due within 1 year.....	-----	-----
(b) Not due within 1 year.....	-----	-----
2330. Bonds.....	-----	-----
Less: Reacquired and Nominally Issued.....	-----	-----
(a) Due within 1 year.....	-----	-----
(b) Not due within 1 year.....	-----	-----
2360 Other Long-Term Obligations.....	-----	-----
Less: Reacquired and Nominally Issued.....	-----	-----
(a) Due within 1 year.....	-----	-----
(b) Not due within 1 year.....	-----	-----
Total Equipment and Other Long-Term Obli- gations.....	-----	=====

DEFERRED CREDIT:

2400. Unamortized Premium on Debt.....	\$.....
2450. Other Deferred Credits.....	.....
Total Deferred Credits.....	=====

RESERVES:

2660. Insurance Reserves.....	.....
2680. Injuries, Loss and Damage Reserves.....	.....
2690. Other Reserves.....	.....
Total reserves.....	-----

CAPITAL STOCK:

2700. Preferred Capital Stock.....	\$.....
Less: Reacquired and Nominally Issued.....	-----
2710. Common Capital Stock.....	-----
Less: Reacquired and Nominally Issued.....	\$.....
2720. Premiums and Assessments on Capital Stock.....	-----
2730. Capital Stock Subscribed.....	-----
Total Capital Stock.....	=====

NON-CORPORATE CAPITAL:

2800. Sole Proprietorship Capital.....	-----
2810. Partnership Capital.....	-----
Total Non-Corporate Capital.....	=====

UNAPPROPRIATED SURPLUS:

2900. Unearned Surplus.....	-----
2930. Earned Surplus (Deficit in red).....	-----
Total Unappropriated Surplus.....	-----
Total Liabilities.....	-----

CONTINGENT LIABILITIES (NOT INCLUDED ABOVE) \$.....

FORM OF INCOME STATEMENT

I. CARRIER OPERATING INCOME:

Revenues:	
3000. Operating Revenues.....	=====
Expenses:	
4000. Operation and Maintenance Expenses.....	-----
5000. Depreciation Expense.....	-----
5100. Amortization Chargeable to Operations.....	-----
5200. Operating Taxes and Licenses.....	-----
5300. Operating Rents—Net.....	-----
Total Expenses.....	=====
Net Operating Revenue.....	=====
5400. Rent for Lease of Carrier Property—Debit.....	-----
5500. Income from Lease of Carrier Property—Credit.....	-----
Net Carrier Operating Income.....	=====



**II. OTHER INCOME:**

6000. Net Income from Non-Carrier Operations.....	-----
6100. Net Income from Non-Operating Property.....	-----
6200. Interest Income.....	-----
6300. Dividend Income.....	-----
6400. Income from Sinking and Other Funds.....	-----
6500. Other Non-Operating Income.....	-----
Total Other Income.....	=====
Gross Income.....	=====

**III. INCOME DEDUCTIONS:**

7000. Interest on Long-Term Obligations.....	-----
7100. Other Interest Deductions.....	-----
7200. Taxes Assumed on Interest.....	-----
7300. Amortization of Debt Discount and Expense.....	-----
7400. Amortization of Premium on Debt—Credit.....	-----
7500. Other Deductions.....	-----
Total Income Deductions.....	=====
Net Income before Income Taxes.....	=====
8000. Provision for Income Taxes.....	-----
Net Income (or Loss) Transferred to Earned Surplus.....	-----

1. Use of title "working funds" to cover amounts advanced to agents and employees as petty cash funds.

2. Inclusion of amounts receivable from stock subscriptions as a current asset.

3. Use of heading "tangible property," and special type of classification thereunder.

4. Inclusion of "organization . . ." under "intangible property"; provision for reserves for amortization.

5. Location of "investment securities and advances" and "special funds." Recognition of possible accumulation of "depreciation funds."

6. Questionable location of prepayments; illogical combination of "debt discount and expense."

7. Improper showing of stock discount on asset side.

8. Examination of the text of the accompanying instructions and description of accounts indicates that it is not intended to include in the asset total any figure for reacquired securities; the balances of such accounts are properly handled as contras on the liability side.

9. Extent of classification of current liabilities.

10. Segregation of bonds and similar liabilities due within one year but without inclusion in current liabilities.

11. Showing of debt premium as a "deferred credit" rather than as a part of the total recognizable liability.

12. Use of separate "reserves" section.

13. Use of title "unearned surplus." The text describing account 2900 indicates that this account is not intended primarily to cover revaluation surplus. It includes: surplus arising from donations of stock by stockholders; "net credits resulting from reacquisition or resales of carrier's capital stock"; surplus created by reduction of par value; and other special items.

With respect to the form of income statement prescribed the following points may be noted:

1. Segregation of depreciation and amortization under "expenses."
2. Showing of only net result of "non-carrier operations."
3. Recognition that "amortization of premium on debt" is an adjustment of interest cost, not an actual earning.
4. No provision for showing of dividends paid and surplus adjustments.

Instructions 17 and 18 referred to in the balance-sheet form read as follows:

17. "Current Assets" means cash as well as those assets that are readily convertible into cash or are held for current use in operations or construction; current claims against others, payment of which is reasonably assured; and other amounts accruing to the carrier which are subject to settlement within one year from the date of the balance sheet.

18. "Current Liabilities" means those obligations the amount of which is definitely determined or closely estimated which are either matured at the date of the balance sheet or become due within one year from date of issuance or assumption, or upon demand, except bonds, equipment and other long-term obligations, receivers' or trustees' certificates, which shall be classed as long-term obligations . . . regardless of the period for which they are to run.

**Reports Required by Federal Power Commission.** The extensive report required of Class A and B "electric utilities and licensees" by the Federal Power Commission includes forms for comparative balance sheet and "income and earned surplus account." The balance-sheet forms are reproduced on pages 78-81.

In these forms many of the unsatisfactory features of the older prescribed statements in the utility field are retained. Among specific characteristics deserving mention are:

1. Unfortunate general title "assets and other debits" for left-hand side.
2. Current assets following fixed.
3. Extensive classification of current assets.
4. Good location of "prepayments."
5. Use of "deferred debits" section, covering debt discount, special property losses, and other non-asset items.

# 200. COMPARATIVE BALANCE SHEET

## Assets and Other Debits

Under "Utility Plant" below show separately for each utility department, wherever applicable, the balances in plant and plant adjustment accounts similar to accounts 100 and 107 of the electric department.

Line No.	Title of account (a)	Schedule Page No. (b)	Balance beginning of year (c)		Balance end of year (d)		Increase or decrease (e)	
			\$	c.	\$	c.	\$	c.
	UTILITY PLANT							
1	(100) Electric plant.....	202						
2	(107) Electric plant adjustments.....	202						
3	(108) Gas plant.....	202						
4	(108) Gas plant adjustments.....	202						
5	(108) Common utility plant.....	202						
6	(108) Common utility plant adjustments.....	202						
7								
8								
9								
10								
11								
12								
13								
14								
15								
16	Total utility plant.....							
	INVESTMENT AND FUND ACCOUNTS							
17	(110) Other physical property.....	203						
18	(111) Investments in associated companies.....	204						
19	(112) Other investments.....	207						
20	(113) Sinking funds.....	209						
21	(114) Miscellaneous special funds.....	209						
22	Total investment and fund accounts.....							
23	CURRENT AND ACCRUED ASSETS							
24	Cash.....							
25								



## 200. COMPARATIVE BALANCE SHEET

### Liabilities and Other Credits

Give particulars as to any contingent assets or liabilities existing at end of year. Minor items may be grouped by classes, showing the number of such items. If dividends were in arrears on cumulative preferred stock outstanding at end of year, state the amount for each class of such stock.

Line No.	Title of account (a)	Schedule page No. (b)	Balance beginning of year (c)		Balance end of year (d)		Increase or decrease (e)	
			\$	c.	\$	c.	\$	c.
1								
2	<b>CAPITAL STOCK</b>							
3	(200) Common capital stock	224	x	x	x	x	x	x
4	(201) Preferred capital stock	224						
5	(202) Stock liability for conversion	225						
6	(203) Premiums and assessments on capital stock	225						
7	(204) Capital stock subscribed	225						
8	(205) Installments received on capital stock	225						
9	<b>Total capital stock</b>							
10	<b>LONG-TERM DEBT</b>							
11	(210) Bonds	226	x	x	x	x	x	x
12	(211) Receivers' certificates	226						
13	(212) Advances from associated companies	227						
14	(213) Miscellaneous long-term debt	226						
15	<b>Total long-term debt</b>							
16	<b>CURRENT AND ACCRUED LIABILITIES</b>							
17	(220) Notes payable	228	x	x	x	x	x	x
18	(221) Notes receivable discounted							
19	(222) Accounts payable							
20	(223) Payables to associated companies	229						
21	(224) Dividends declared	308						
22	(225) Matured long-term debt							
23	(226) Matured interest							
24	(227) Customers' deposits							



# REPORT OF CONDITION of The

of \_\_\_\_\_, in the State of \_\_\_\_\_, at the close of business on \_\_\_\_\_, 19\_\_\_\_

(Name of bank)

(City or town)

ASSETS		DOLLARS		CTS.
1.	Loans and discounts (including \$_____ overdrafts) (Schedule A, item 10)_____			1
2.	United States Government obligations, direct and guaranteed (Schedule B, item 1 (c))_____			2
3.	Obligations of States and political subdivisions (Schedule B, item 2 (c))_____			3
4.	Other bonds, notes, and debentures (Schedule B, item 3 (c))_____			4
5.	Corporate stocks, including stock of Federal Reserve bank (Schedule B, item 4 (f))_____			5
6.	Cash, balances with other banks, including reserve balance, and cash items in process of collection (Schedule D, item 8)_____			6
7.	Bank premises owned \$_____; furniture and fixtures \$_____ (Schedule C, item 1 (c)) (Bank premises owned are subject to \$_____ liens not assumed by bank)			7
8.	Real estate owned other than bank premises (Schedule C, item 2 (d))_____			8
9.	Investments and other assets indirectly representing bank premises or other real estate (Schedule C, item 3 (c))_____			9
10.	Customers' liability to this bank on acceptances outstanding_____			10
11.	Other assets (total of Schedule H)_____			11
12.	TOTAL ASSETS_____			12

# LIABILITIES

13. Demand deposits of individuals, partnerships, and corporations (Schedule E, item 1).....
14. Time deposits of individuals, partnerships, and corporations (Schedule F, item 1 (7)).....
15. Deposits of United States Government (including postal savings) (Schedule E, item 2, and Schedule F, item 2).....
16. Deposits of States and political subdivisions (Schedule E, item 3, and Schedule F, item 3).....
17. Deposits of banks (Schedule E, items 4 and 5, and Schedule F, items 4 and 5).....
18. Other deposits (certified and cashier's checks, etc.) (Schedule E, item 6).....
19. **TOTAL DEPOSITS** (items 13 to 18, inclusive)..... \$.....
20. Bills payable, rediscounts, and other liabilities for borrowed money.....
21. Mortgages or other liens, \$..... on bank premises and \$..... on other real estate.....
22. Acceptances executed by or for account of this bank and outstanding.....
23. Other liabilities (total of Schedule I).....

(Am't not to be extended)

# CAPITAL ACCOUNTS

25. Capital stock:
  - (a) Class A preferred, total par \$....., retrieable value \$.....  
(Rate of dividends on retrieable value is .....%)
  - (b) Class B preferred, total par \$....., retrieable value \$.....  
(Rate of dividends on retrieable value is .....%)
  - (c) Common stock, total par \$.....
26. Surplus.....
27. Undivided profits.....
28. Reserves (and retirement account for preferred stock) (Schedule G, item 5).....
29. **TOTAL CAPITAL ACCOUNTS**.....
30. **TOTAL LIABILITIES AND CAPITAL ACCOUNTS**.....



6. Inclusion of "capital stock discount," a clear case of a contra item, on asset side. Commendable segregation of "capital stock expense."

7. Sandwiching of liabilities between capital stock and surplus, with no clear-cut presentation of total stock equity or of equity of common stock.

8. Poor location of "unamortized premium on debt."

9. Showing of reserves for depreciation and uncollectibles on liability side, in same group with liability and surplus reserves.

10. Segregation of "contributions in aid of construction."

The "income and surplus account" required (not reproduced here) has the commendable feature of combining income and surplus data into one integrated statement.

**Required Reports of Bank Condition.** Reproduced on pages 82-83 is the major section of the report of condition required of banks by the Comptroller of the Currency, U. S. Treasury Department. The full form includes memoranda of pledged assets and secured liabilities, and schedules of loans and discounts, securities held, real estate owned, cash, demand deposits, etc., referred to in the form reproduced. Published bank statements of condition generally follow the prescribed arrangement, although often presented in less detail. Among technical points of interest are:

1. Location of cash after current receivables and marketable securities.

2. No reference to depreciation in connection with bank premises and equipment.

3. Classification of deposits.

4. Commendable showing of "total liabilities."

5. Inclusion on both sides of effect of acceptances outstanding.

6. Use of expression "retirable value" in connection with capital stock.

7. Distinction drawn between "surplus" and "undivided profits."

8. "Reserves" (according to Schedule G of full form) include such unusual items as "reserve for dividends payable in common stock" and "reserves for other undeclared dividends."

**Statements for Credit Purposes.** A variety of forms of statements for credit purposes have been prepared by financial institutions and credit associations. On pages 85-86 are reproduced portions of a six-page folder used by a large bank. The balance of the folder consists of various schedules and space for supplementary data. The following points may be noted:

1. Inclusion of cash value of life insurance in current assets.

2. Questionable aggregation of "prepaid expenses," certain classes of investments and receivables, and intangibles.

3. Special classification of notes payable and accounts payable.

4. Inclusion in current liabilities of "funded debt" and other liabilities "due within one year."
5. Use of term "deferred" to designate long-term liabilities.
6. Use of term "net worth."
7. Treatment of "cash discount on purchases" as income and "cash discounts allowed" as expense.
8. Treatment of federal taxes as expense.

FORM 102

To NATIONAL BANK OF DETROIT

CORPORATION—SHEET ONE

Name \_\_\_\_\_  
 Business \_\_\_\_\_  
 Address \_\_\_\_\_

STATEMENT OF ASSETS AND LIABILITIES AS OF \_\_\_\_\_ 193\_\_

Fill all blanks, writing "No" or "None" where necessary to complete information

ASSETS		Dollars	Cts.	LIABILITIES AND NET WORTH		Dollars	Cts.
<b>CURRENT</b>				<b>CURRENT (Due within One Year)</b>			
Cash on Hand and in Banks (Schedule 10)				Notes Payable			
Notes Receivable—Customers (Schedule 1)				To This Bank			
Accounts Receivable—Customers (Schedule 1)				To Other Banks			
Less Bad Debt Reserve				For Merchandise			
Merchandise				For Equipment			
Finished (Cost or Market?)				Accounts Payable			
In Process (How Valued?)				For Merchandise—Not Due			
Raw Material (Cost or Market?)				For Merchandise—Past Due			
Consigned (In or Out?)				For Consigned Merchandise			
Listed Stocks and Bonds (Schedule 3)				Other			
Cash Value Life Insurance				Due to Controlled and Affiliated Concerns (Schedule 8)			
Other (Items)				Due to Officers, Stockholders, Employees, etc., for Temporary Loans			
<b>TOTAL CURRENT</b>				Deposits (When Payable?)			
<b>FIXED</b>				Federal Taxes			
Real Estate Used in Business (Schedule 6)				Other Accrued Taxes			
Buildings (Schedule 6)				Other Accrued Expenses			
Less Depreciation				Funded Debt—Current			
Machinery and Equipment				Mortgage and Contract Payments Due within One Year (Schedules 5 and 6)			
Less Depreciation				<b>TOTAL CURRENT</b>			
<b>TOTAL FIXED</b>				<b>DEFERRED</b>			
<b>OTHER REAL ESTATE</b>				Funded Debt (Attach Copy of Indenture)			
Held by Deed (Schedule 6)				Mortgage—Business Prop. (Schedule 6)			
Bought on Contract (Schedule 6)				Land Contr.—Business Prop. (Schedule 6)			
Mortgages Receivable (Schedule 2)				Mortgages—Other Real Estate (Schedule 6)			
Land Contracts Receivable (Schedule 5)				Land Contr.—Other Real Estate (Schedule 6)			
<b>TOTAL OTHER REAL ESTATE</b>				Mortgage on Real Estate Sold on Contract (Schedule 5)			
<b>DEFERRED AND MISCELLANEOUS</b>				Loans on Life Insurance			
Investments—Controlled and Affiliated Concerns (Schedule 8)				Other Liabilities (Items)			
Due from Controlled and Affiliated Concerns (Schedule 8)							
Unlisted Stocks and Bonds (Schedule 3)				<b>TOTAL DEFERRED</b>			
Prepaid Expenses				<b>TOTAL CURRENT AND DEFERRED</b>			
Receivables—Officers and Employees (Schedule 7)				<b>OTHER RESERVES (Schedule 9)</b>			
Goodwill, Patents and Trademarks				<b>NET WORTH</b>			
Other (Items)				Preferred Stock			
				Common Stock			
				Surplus—Capital			
				Surplus—Earned			
<b>TOTAL DEFERRED &amp; MISCEL.</b>				<b>NET WORTH</b>			
<b>TOTAL</b>				<b>TOTAL</b>			



6. Commendable segregation of land.
7. Classification of depreciable assets and separation of applicable reserves. (Note that no reserve is indicated for "china, glassware, linen, silver and uniforms.")
8. Extended classification of "deferred expenses," including such specific items as "preopening expenses," "alterations for tenants," and "advertising." Usual but questionable combination of "discount and expense on funded indebtedness."
9. General lack of indication of bases of valuation of assets. (In the explanation of balance-sheet captions included in the manual the pricing of inventories at cost is indicated.)
10. "Trade advertising unused"—in the explanations of balance-sheet items it is stated that "this account should represent the contract value of advertising still to be published under trade advertising agreements."
11. Extended classification of "accrued expenses."
12. "Trade advertising due bills outstanding"—an unusual item.
13. Poor location of "unearned income," which represents the "unearned portion of rentals received or charged to guests' and tenants' accounts receivable, for a period beginning prior to, and ending after, the date of the balance sheet."
14. "Reserves"—according to the accompanying explanation the balances of such accounts as "reserve for repairs and maintenance" at the end of the fiscal year "should be closed out to the related expense accounts or inventory accounts."

Features of the "profit and loss" statement include:

1. Extended classification of revenue.
2. References to elaborate scheme of supporting schedules.
3. Unfortunate stress on term "profit" at various points before all operating costs have been deducted.
4. Use of questionable heading, "deductions from income" to designate administrative and other expenses not assigned to departmental revenues.
5. Peculiarly objectionable headings are "profit available for interest and depreciation" and "profit before depreciation."
6. Lack of reference to income taxes—the explanations indicate that such charges are to be included under "other additions and deductions."
7. Lack of provision for dividend deductions and surplus reconciliation.

## BALANCE

As at

## ASSETS

## CURRENT ASSETS

Cash on Hand  
Cash in Bank

\$  
\$

Notes Receivable  
Accounts Receivable  
Accrued Interest Receivable

\$  
\_\_\_\_\_  
\$

Total Receivables  
Less: Reserve for Doubtful Accounts

\$  
\_\_\_\_\_  
\$

Inventories of Merchandise and Supplies  
Marketable Securities  
Other Current Assets

\_\_\_\_\_  
\$

Total Current Assets

## DUE FROM OFFICERS AND EMPLOYEES

## DUE FROM AFFILIATED AND ASSOCIATED COMPANIES

## FUNDS IN HANDS OF TRUSTEES

## DEPOSITS WITH PUBLIC SERVICE CORPORATIONS

## PREPAID EXPENSES

Insurance  
Taxes  
Rental of Telephone Facilities  
Other Prepaid Expenses

\$  
\_\_\_\_\_  
\$

## INVESTMENTS

## FIXED ASSETS

Land  
Buildings  
Less: Reserve for Depreciation

\$  
\$  
\$

Leasehold and Leasehold Improvements  
Less: Reserve for Amortization

\$  
\_\_\_\_\_  
\$

Furniture and Equipment  
Less: Reserve for Depreciation

\$  
\_\_\_\_\_  
\$

China, Glassware, Linen, Silver and Uniforms

\_\_\_\_\_  
\$

## DEFERRED EXPENSES

Organization and Financing Expenses  
Preopening Expenses  
Discount and Expense on Funded Indebtedness  
Rental Agents' Commissions  
Alterations for Tenants  
Advertising  
Other Deferred Expenses

\$  
\_\_\_\_\_  
\$

## TRADE ADVERTISING UNUSED

## OTHER ASSETS

Good Will

## TOTAL ASSETS

\_\_\_\_\_  
\$  
\_\_\_\_\_

# SHEET

19

## LIABILITIES AND CAPITAL

### CURRENT LIABILITIES

Notes Payable	\$
Accounts Payable	
Trade Creditors	\$
Others	_____

Federal Income Tax	
Dividends Payable	
Accrued Expenses	
Salaries and Wages	\$
Taxes—Real Estate	
Taxes—Other	
Interest on Funded Indebtedness	
Interest—Other	
Other Accruals	_____

Other Current Liabilities

Total Current Liabilities

DUE TO AFFILIATED AND ASSOCIATED COMPANIES

DEPOSITS ON RENTS AND BANQUETS

TRADE ADVERTISING DUE BILLS OUTSTANDING

FUNDED INDEBTEDNESS

Bonds and Mortgages

Debentures

Long Term Notes

UNEARNED INCOME

RESERVES

Repairs and Maintenance

Other

CAPITAL STOCK (If a Corporation)

Authorized ..... Shares

Par Value \$. . . . . Each

Less: Unissued ..... Shares

Issued ..... Shares

Less: Treasury Stock ..... Shares

Outstanding ..... Shares

SURPLUS (Or, Less Deficit)

Total Capital and Surplus

NET WORTH (If a Partnership or Individual)

A

B

Total Net Worth

TOTAL LIABILITIES AND CAPITAL

# SUMMARY OF PROFIT AND LOSS

(Short Form)

			Current Period
<b>ROOMS DEPARTMENT</b>			
Rooms Sales			\$ _____
Rooms Expenses			
Salaries and Wages			\$ _____
Other Rooms Expenses			_____
Total Rooms Expenses			\$ _____
Rooms Department Profit	Schedule B- 1		_____
<b>OTHER OPERATED DEPARTMENTS</b>			
Food and Beverages	"	B- 2	
Cigar Stand	"	B- 3	
News Stand	"	B- 4	
Candy and Soda Shop	"	B- 5	
Telephone	"	B- 6	
Valet	"	B- 7	
Check Rooms and Wash Rooms	"	B- 8	
Porters	"	B- 9	
Barber Shop	"	B-10	
Beauty Parlor	"	B-11	
Baths	"	B-12	
Florist	"	B-13	
Guests' Laundry	"	B-14	
Total Other Operated Departments Profits			\$ _____
<b>TOTAL OPERATED DEPARTMENTS PROFITS</b>			\$ _____
<b>OTHER INCOME</b>	"	B-15	
<b>GROSS OPERATING INCOME</b>			\$ _____
<b>DEDUCTIONS FROM INCOME</b>			
Administrative and General Expenses	"	B-16	\$ _____
Advertising and Business Promotion	"	B-17	
Purchased			
Trade			
Heat, Light and Power	"	B-18	
Repairs and Maintenance	"	B-19	
Total Deductions			\$ _____
<b>HOUSE PROFIT</b>			\$ _____
<b>STORE RENTALS</b>	"	B-20	
<b>GROSS OPERATING PROFIT</b>			\$ _____
<b>RENT, TAXES AND INSURANCE</b>	"	B-21	
<b>PROFIT AVAILABLE FOR INTEREST AND DEPRECIATION</b>			\$ _____
<b>INTEREST</b>	"	B-21	
<b>PROFIT BEFORE DEPRECIATION</b>			\$ _____
<b>DEPRECIATION AND EXPENSE AMORTIZATION</b>	"	B-21	
<b>NET OPERATING PROFIT (OR LOSS) FOR PERIOD</b>			\$ _____
<b>OTHER ADDITIONS OR DEDUCTIONS</b>	"	B-22	
<b>NET PROFIT (OR LOSS) FOR PERIOD—TO SURPLUS EXHIBIT A</b>			\$ _____

**Statements Recommended by American Institute of Accountants.** The forms shown on pages 91-92 are taken from the bulletin "Examination of Financial Statements by Independent Auditors" issued by the American Institute of Accountants. They are designed to meet the needs of the

# FORM OF BALANCE SHEET

## *Assets*

### *Current Assets:*

Cash in banks and on hand.....  
 Marketable securities (state basis).....  
 Notes and accounts receivable:  
     Customers:  
         Accounts receivable.....  
         Notes receivable.....  
     Others.....  
 Less—  
     Reserve for doubtful notes and accounts.....  
     Reserve for discounts, freight, allowances, etc.....  
 Inventories: (state basis)  
     Raw materials and supplies.....  
     Work in process.....  
     Finished goods.....  
 Other current assets:  
     Indebtedness of stockholders, directors, officers and  
         employees (current).....  
     Indebtedness of affiliated companies (current).....  
     Other items (describe).....  
     Total current assets.....

### *Investments: (state basis)*

Securities of affiliated companies.....  
 Indebtedness of affiliated companies—not current.....  
 Other (state important items separately).....

### *Property, Plant and Equipment: (state basis)*

Land used for plant.....  
 Buildings used for plant.....  
 Machinery and equipment.....  
 Patterns and drawings.....  
 Office furniture and fixtures.....  
 Other items (describe).....  
     Total property, plant and equipment.....  
 Less—  
     Reserves for depreciation, depletion, amortization, etc.....

### *Intangible Assets: (describe)*

.....

### *Deferred Charges:*

Prepaid expenses, interest, insurance, taxes, etc.....  
 Bond discount.....  
 Other deferred charges (describe important items).....

### *Other Assets: (describe)*

.....  
 Total.....



## ADVANCED ACCOUNTING

### *Liabilities*

#### **Current Liabilities:**

##### Notes payable:

Banks.....  
Brokers (commercial paper).....  
Merchandise creditors (including notes given for  
machinery, equipment, etc., purchased).....  
Acceptances (for merchandise and raw material  
purchased).....  
Stockholders, directors, officers and employees.....  
Accounts payable and accrued expenses.....  
Advances from stockholders, directors, officers and  
employees.....  
Accrued interest.....  
Provision for federal and state taxes.....  
Other current liabilities (describe).....

*Note:* Where assets have been pledged against any of the foregoing liabilities,  
that fact and the nature and amount of the assets pledged should be stated.  
Total current liabilities.....

#### **Funded Debt: (describe)**

Bonded debt.....  
Mortgages.....  
Other funded indebtedness (describe).....  
Total funded debt.....

**Reserves: (describe by major classes)**.....  
.....

#### **Capital Stock: (describe)**

Preferred stock.....  
Common stock.....

#### **Surplus:**

Capital or paid-in.....  
Arising from revaluation (see Par. 3 under "Surplus").....  
Earned (or deficit).....

(A summary of surplus accounts for the period should  
be shown either in the balance sheet or in a separate  
statement)

Total.....

- Contingent liabilities not covered by reserves should be given due consideration
- If there be arrears in cumulative dividends state the amount or the rate per share.
- Any default in the principal, interest or sinking fund provisions of funded debt should be stated and the relative amounts involved.

## FORM OF PROFIT AND LOSS STATEMENT

Gross sales.....  
Less outward freight, allowances and returns.....  
Net sales.....  
Cost of sales.....  
Gross profit on sales.....  
Selling, general and administrative expenses.....  
Net profit before other income and charges.....

Other income:	
Income from investments	-----
Interest on notes receivable, etc.	-----
Other non-operating or extraordinary income (separately shown)	-----
Other charges:	
Interest on funded debt (and amortization of bond discount)	-----
Interest on notes payable	-----
Other non-operating or extraordinary charges (separately shown)	-----
Provisions for income taxes	-----
Total deductions	-----
Net profit (loss) for period carried to surplus	-----

*Note:* It is desirable to indicate the amount of provision for depreciation, depletion, etc., for the period.

typical industrial company. The balance sheet has many desirable features. Particularly commendable is insistence on the stating of basis of asset valuation. The following comments refer to questionable features of the balance sheet:

1. Exclusion of current prepayments from "current assets." "Prepaid interest" is a misnomer, and presumably refers to unaccumulated discount on short-term obligations stated at maturity value.

2. Ideally bond discount should be shown as a contra to face or maturity amount of bonds.

3. Assumption that "reserves" represent a major section of liability side is unfortunate. "Reserves" expressing liabilities should be classed therewith; "reserves" which are contras to assets should appear as deductions on asset side; "reserves" which represent surplus appropriations should be reported under surplus.

4. "Capital or paid-in" surplus should be associated with capital stock; a total of the common stock equity should be shown; surplus from revaluation should be added to the total of the stock equity as otherwise determined.

The form of "profit and loss statement" recommended is less satisfactory. Among questionable features are:

1. Exclusion of "outward freight" from expenses.
2. Emphasis on "gross profit."
3. Combination of selling and "general and administrative" expenses.
4. Lack of provision for showing of dividend appropriations and surplus adjustments.

## IV

### SPECIAL TYPES OF STATEMENTS

**Sectional Statements.** Supporting and explanatory schedules, dealing with a particular section or phase of financial position or operating performance, are often elaborated to a degree which justifies ranking as a special type of statement. The most common and important example of a sectional balance-sheet statement is the analysis of working capital, or "current-account balance sheet." Occasionally the data of fixed assets and other long-term commitments are assembled in the form of a subordinate statement. Another possibility is the compilation of the various classes of entries relating to a particular account or financial element. The principal example is the treasurer's report—the statement of receipts and disbursements.

Sectional statements based primarily on income-sheet data are also employed. Here the most important example is the exhibit of departmental or branch revenues and expenses. A horizontal section of the income data may also be given such emphasis as to deserve rating as a form of statement. The data of net income, dividends, and surplus are often assembled in statement form. The analysis of production cost may be viewed as a special type of statement.

**Statements of Working Capital.** In the usual form the statement of working capital or current position consists of a tabular comparison of current assets and current liabilities, with the difference displayed as net working capital (or deficiency). As in the case of the general balance sheet, the statement may include the data for two or more periods. The illustration at top of page 95 is taken from a report of Kimberly-Clark Corporation.

Where the statement of working capital is designed to accompany the general balance sheet it may be expedient to show current assets and current liabilities in very condensed form in the main statement. In this case specific reference to the more detailed special report should be attached to the balance sheet.

The composition of gross working capital may be emphasized in the special report by indicating what percentage each class of current asset is to the total of current assets. The statement may also include a

## COMPARISON OF NET WORKING CAPITAL 1939 AND 1938

	December 31 1939	December 31 1938	Increase (Decrease)
<b>Current Assets:</b>			
Cash . . . . .	\$ 1,599,551.30	\$ 1,632,419.82	\$(32,868.52)
Marketable Securities . . . . .	1,597,410.65	1,485,761.74	111,648.91
Receivables Less Reserves . . . . .	2,611,687.70	2,567,598.35	44,089.35
Inventories . . . . .	5,444,772.78	5,329,129.80	115,642.98
<b>Total . . . . .</b>	<b>\$11,253,422.43</b>	<b>\$11,014,909.71</b>	<b>\$238,512.72</b>
<b>Current Liabilities:</b>			
Accounts Payable . . . . .	\$ 1,291,529.47	\$ 913,240.03	\$378,289.44
Accrued Accounts . . . . .	1,360,979.62	1,222,114.77	138,864.85
Dividends Payable . . . . .	271,488.25	271,488.25	.....
Bonds to be retired within one year . . . . .	280,000.00	560,000.00	(280,000.00)
<b>Total . . . . .</b>	<b>\$ 3,203,997.34</b>	<b>\$ 2,966,843.05</b>	<b>\$237,154.29</b>
<b>Net Working Capital . . . . .</b>	<b>\$ 8,049,425.09</b>	<b>\$ 8,048,066.66</b>	<b>\$ 1,358.43</b>
<b>Ratio of Current Assets to Current Liabilities . . . . .</b>	<b>3.5 to 1</b>	<b>3.7 to 1</b>	

computation of excess "quick" or highly liquid assets over total current liabilities. The hypothetical example given below includes both of these features. By "receivables collectible on demand," it may be noted, are meant such items as call loans, matured bond coupons, and all other receivables subject to immediate collection or liquidation.

## M COMPANY

## Statement of Working Capital

December 31, 1941

<b>Liquid Assets:</b>			%
Cash on Hand and in Banks . . . . .	\$ 50,000		16.67
Marketable Securities (at current market prices) . . . . .	75,000		25.00
Receivables Collectible on Demand . . . . .	25,000		8.33
	<u>\$150,000</u>		
<b>Current Liabilities</b>			
Accounts and Notes Payable . . . . .	\$40,000		
Payrolls . . . . .	5,000		
Interest, Taxes, and Other Accruals . . . . .	5,000	50,000	
<b>Excess of Liquid Assets . . . . .</b>		<u>\$100,000</u>	
<b>Other Current Assets:</b>			
Accounts and Notes of Customers . . . . .	\$75,000		
Less Allowances for Bad Debts and Other Adjust- ments . . . . .	5,000	70,000	23.33
Inventories (valued at cost) . . . . .		75,000	25.00
Current Prepayments (unexpired costs) . . . . .		5,000	1.67
<b>Net Working Capital . . . . .</b>		<u>\$250,000</u>	
<b>Total Current Assets . . . . .</b>		<u>\$300,000</u>	100.00

The statement of working capital is essentially the upper section of the ordinary balance sheet, arranged in account form and with items running from current to fixed. It is the "current-account" balance sheet as opposed to the "capital-account" balance sheet. In this connection there is something to be said for a revival and extension of the old practice of presenting the balance sheet in two connected parts, with the net working capital of the current section being used to balance the capital section. At any rate it is important that readers of financial reports realize that the general balance sheet includes two very distinct types of resources: (1) those which are actual purchasing power or can or will be shortly converted into money; (2) long-term commitments in land, buildings, and other facilities of production. Much of the controversy and misunderstanding with respect to the significance of the balance sheet grows out of a failure to realize that it is virtually a double-purpose type of report.

Occasionally an enterprise issues the statement of current position as a balance sheet in itself, all fixed assets and capital equities being suppressed. The following is an example taken from a report of the Quincy Mining Co.:

#### STATEMENT OF ASSETS AND LIABILITIES

Exclusive of Real Estate, Mine Plant and Supplies in Use

<i>Assets</i>		<i>January 1, 1931</i>
Cash, copper and investments . . . . .		\$376,622.04
Accounts receivable, New York . . . . .	\$139,003.23	
"      "      , at mine . . . . .	16,288.52	
"      "      , at smelting works . . . . .	1,615.72	156,907.47
Deferred charges . . . . .		37,230.58
At mine and smelting works:		
Supplies . . . . .	\$166,925.36	
Timber lands . . . . .	5,086.27	
Teams and auto trucks . . . . .	2,975.00	
Construction account . . . . .	5,264.54	180,251.17
		<u>\$751,011.26</u>
<i>Liabilities</i>		
Accounts payable in New York . . . . .	\$349,542.78	
"      "      at mine . . . . .	72,804.89	
"      "      at smelting works . . . . .	622.39	
Accident reserve . . . . .	30,629.90	453,599.96
		<u>\$297,411.36</u>

In this statement the balancing figure, net working capital, is not computed. See pages 104-105 for accompanying cumulative statement of

receipts and disbursements, covering the entire history of the corporation, taken from the same report.

Cities and other governmental organizations likewise often confine reports of financial condition to either a statement of working capital or such a statement coupled with a schedule of long-term liabilities.

**Analysis of Changes in Current Position.** Somewhat related to the statement of working capital is the analysis of changes in current position. This is likely to take the form of a "funds" statement. The following example is taken from a recent financial report of the Caterpillar Tractor Co.:

Net current assets decreased \$4,296,389.90 during the year and the disposition of this amount is indicated in the following summary:

Net current assets December 31, 1938 . . . . .		\$28,861,282.65
Add:		
Profit for the year before deducting Federal taxes.	\$ 7,669,953.83	
Costs and losses which did not require cash outlay during the year:		
Depreciation . . . . .	2,541,085.96	
Loss on properties sold or scrapped and loss due to revaluation of properties now only partially used . . . . .	666,302.75	10,877,342.54
		<hr/>
Bank loans—due in one to five years . . . . .		4,500,000.00
		<hr/>
		\$44,238,625.19
Deduct:		
Cash dividends . . . . .	\$ 4,337,337.25	
Federal taxes for year . . . . .	1,665,063.46	
Net expenditures for plant assets, etc. . . . .	2,156,131.73	
Redemption of preferred capital stock. . . . .	11,515,200.00	19,673,732.44
		<hr/>
Net current assets December 31, 1939 . . . . .		<u>\$24,564,892.75</u>

In Chapter XXX the nature and use of the comprehensive statement of funds is discussed.

**Cash Reports.** A type of financial report widely used in business enterprise, and given especial prominence in quasi-commercial and governmental undertakings, is the statement of receipts and disbursements and of cash balances. This statement, the backbone of the typical treasurer's report, reflects the stewardship of the official or officials responsible for the cash resources and also summarizes an important group of transactions—those directly affecting cash funds. The illustration on page 100, taken from the 1940 report of the Provident Mutual Life Insurance Co., includes no showing of cash balances and is presented with rather unusual captions.

EXHIBIT  
CITY OF  
Statement of Receipts  
Year Ended

*Receipts*

General Fund:

Taxes (Schedule B-1) . . . . .	\$399,314.95
Fines and Fees (Schedule B-2) . . . . .	46,362.84
Sales and Services (Schedule B-3) . . . . .	98,975.52
Rental of City Property . . . . .	2,958.94
Interest . . . . .	4,798.37

\* \*

Trust Funds:

Other Government:		
County Treasurer . . . . .	\$246,073.91	
Board of Education . . . . .	571,027.89	
Secretary of State . . . . .	7,130.75	\$824,232.55

City of Ann Arbor:

Operators' License . . . . .	\$ 1,624.30
Water Department . . . . .	223,507.78
Market . . . . .	2,153.86

\* \*

Balances on Hand, July 1, 1939

Fund:

General . . . . .	\$104,052.86
Capital . . . . .	62.36
Special Assessment . . . . .	52,078.26
County Treasurer . . . . .	178.08
Board of Education . . . . .	19.20
Operators' License . . . . .	670.54
Water Department . . . . .	19,497.52
Market . . . . .	38.52
Police and Firemen's Relief . . . . .	524.99
Cemetery Sinking . . . . .	1,201.78
Fire Department Special . . . . .	589.24
Insurance . . . . .	574.58
Fire Department Equipment . . . . .	1,057.52
Weight Tax . . . . .	35,519.56
Unclaimed Bond and Interest . . . . .	5,787.50
Matthews Day Nursery . . . . .	
Police Uniform . . . . .	
Firemen and Police Pension and Retirement . . . . .	
Sewage Disposal Plant . . . . .	41,911.42

Total . . . . .	263,763.93
-----------------	------------

Total Cash Available—All Funds . . . . .	<u>\$2,342,168.11</u>
--	-----------------------

B

ANN ARBOR

And Disbursements

June 30, 1940

*Disbursements*

## General Fund:

Salaries . . . . .	\$206,070.81	
Wages . . . . .	90,343.81	
Printing, Stationery, and Office Supplies . . . . .	5,476.75	
Telephone, Telegraph, and Postage . . . . .	4,172.99	
Repairs . . . . .	2,062.80	

\* \*

## Trust Funds:

## Other Government:

County Treasurer . . . . .	\$246,071.02	
Board of Education . . . . .	571,024.14	
Secretary of State . . . . .	7,130.75	\$824,225.91

## City of Ann Arbor:

Operators' License . . . . .	\$ 1,775.00	
Water Department . . . . .	220,252.80	
Market . . . . .	2,015.59	

\* \*

## Balances on Hand, June 30, 1940

## Fund:

General . . . . .	\$165,368.06
Capital . . . . .	24.56
Special Assessment . . . . .	64,908.76
County Treasurer . . . . .	180.97
Board of Education . . . . .	22.95
Operators' License . . . . .	519.84
Water Department . . . . .	22,752.50
Market . . . . .	176.79
Police and Firemen's Relief . . . . .	605.11
Cemetery Sinking . . . . .	1,930.28
Fire Department Special . . . . .	1,112.55
Insurance . . . . .	4,432.53
Fire Department Equipment . . . . .	2,572.52
Weight Tax . . . . .	60,676.34
Unclaimed Bond and Interest . . . . .	5,787.50
Matthews Day Nursery . . . . .	2,830.45
Police Uniform . . . . .	406.00
Firemen and Police Pension and Retirement . . . . .	8,199.97
Sewage Disposal Plant . . . . .	58,949.30

Total . . . . .	401,456.98
-----------------	------------

Total Disposition of Cash—All Funds . . . . .	\$2,342,168.11
---	----------------



## RECEIPTS FOR THE YEAR 1940

We have received premiums from policy owners . . . . .	\$34,427,080.64
Our investments have produced interest and rents (less net bond amortizations, and taxes and expenses on real estate) . . . . .	12,992,132.84
We realized net profits on the sale or maturity of assets, and sundry gains (net) . . . . .	524,564.01
Receipts from Premiums and Investments . . . . .	\$47,943,777.49
Amounts were left with the Company under supplementary contracts . . . . .	8,026,302.71
Total Receipts for the Year . . . . .	<u>\$55,970,080.20</u>

## HOW THE RECEIPTS WERE APPLIED

We have paid or credited to policy owners or beneficiaries:	
Matured endowments . . . . .	\$ 5,489,892.70
Death claims . . . . .	8,161,181.00
Disability and annuity payments . . . . .	2,545,610.30
Surrender values . . . . .	6,229,276.27
Surplus distributed to policy owners (dividends) . . . . .	5,250,354.31
Payments under supplementary contracts . . . . .	3,520,908.93
Dividends originally left with the Company withdrawn during year . . . . .	486,983.93
Our ledger assets to cover policy reserves and other funds held for policy owners have increased . . . . .	17,964,181.38
Total Paid or Credited to Policy Owners or Beneficiaries or Added to Funds Held for Their Benefit . . . . .	\$49,648,388.82
We have paid for the Company's operating expenses:	
Agents' commissions . . . . .	2,458,750.45
Agency office expenses . . . . .	551,753.31
Home Office salaries . . . . .	1,137,985.37
Taxes (other than on real estate), supplies and other Home Office expenses . . . . .	1,526,971.78
Asset values have been written down (net) . . . . .	646,230.47
Total, Equaling the Total Receipts . . . . .	<u>\$55,970,080.20</u>

This statement, evidently, is not confined literally to cash receipts and disbursements.

The cash report is the only financial statement regularly prepared by many societies and associations, and in some situations this practice may be condoned. If, for example, the income of the organization consists largely of dues received from members, expenses are promptly paid in cash, and the cash balance is the principal asset, an itemized report of funds received and expended, coupled with a showing of the balance on hand, may give a fairly adequate picture of operations and of financial condition. On the other hand, there are numerous entities outside the business field proper which own considerable property, have large amounts outstanding in receivables and payables, both current and long-term, and acquire income from a variety of sources. In all such cases complete accounting and reporting, closely patterned after the system of the typical enterprise, is to be recommended.

In the field of government the cash statement has always been stressed, the income sheet and balance sheet being neglected. This is in part due to inherent features of governmental finance and operation. In the first place the financial strength of the municipality or other governmental unit is based primarily upon the power to tax rather than upon the public improvements and other properties for which funds have been expended, and it is not surprising, accordingly, that there is a tendency to ignore assets other than cash and related items in government accounting. Moreover, a government is not in general engaged primarily in commercial production, and hence the need for revenue and expense accounting and systematic operating statements to serve as bases for managerial decisions is not as apparent in public enterprise as in private business. The fact that the proprietary or private-ownership element is not present as such in governmental affairs likewise tends to discourage the development and use of reports other than the cash statement. It should be added that there is a growing recognition in governmental circles, particularly in municipal affairs, of the need for systematic reports of operations and financial position. The example given on pages 98-99 consists of excerpts from a municipal statement of receipts and disbursements.

That the cash report, no matter how carefully prepared and complete, does not constitute a satisfactory substitute for either of the principal financial reports should be emphasized. The cash statement, of course, affords no information as to liabilities and other equities, and indicates the status of no asset other than cash. Further, although an analysis of receipts and disbursements may throw some light on revenues and expenses, it is obvious that revenues and expenses on a credit or accrual basis cannot be discovered from an examination of cash data.

**Analytic Cash Statement.** The following interesting example of an analysis of cash resources and their utilization is taken from the 1939 report of the Humble Oil & Refining Co.:

*Cash Resources:*

The net income for the year was . . . . .	\$29,950,287
To this have been added the charges to income which did not require cash, such as, for example, provisions for depreciation, depletion, amortization, and properties, plant and equipment written off. . . .	26,554,634
Cash receipts from operations exceeded cash disbursements for operations by . . . . .	56,504,921
Cash was also provided through a decrease in working assets and other miscellaneous assets in the amount of . . . . .	1,043,366
There was a cash balance on hand, in banks and out on demand loans at January 1, 1939, of . . . . .	16,481,862
Cash resources available, after payment and accrual of operating costs, were . . . . .	<u>\$74,030,149</u>

These funds were utilized as follows:

During the year gross additions to properties, plant and equipment amounted to	\$38,933,993
Additions to the property accounts which did not require funds, such as materials recovered from retired equipment, and a pro rata part of the depreciation provided for service equipment totaled	3,836,958
Therefore, the cash utilized for capital expenditures was	35,096,155
A reduction in current payables together with the payment of contractual obligations which became due during the year required an expenditure of cash amounting to	508,624
Dividends paid amounted to	17,975,680
The result was a total cash expenditure, for other than operating cost, of	53,580,459
The cash remaining on hand, in banks and out on demand loans at December 31, 1939, was	20,449,690
Total cash resources, as above, accounted for	\$74,030,149

This statement, like the analysis of working capital shown earlier, is a form of "statement of funds." (See Chapter XXX.)

**Departmental Reports.** In the administration of the large enterprise reports of operating results in terms of particular departments and branches are of marked importance. In the case of a service department the only type of operating statement which can be prepared is a schedule of assignable costs, classified and arranged as may be most illuminating. In the case of revenue-producing departments the report begins with departmental sales or other form of gross revenue, shows all applicable costs classified as fully as is feasible and desirable, and concludes with the departmental "profit" (or loss)—the amount representing the contribution of the particular division of the business to the common or unassigned expenses and to the net earnings of the enterprise as a whole. As admitted in Chapter I, in the departmental statement it may be well for comparative purposes to strike a balance after the deduction of merchandise cost of sales (or factory cost of sales, in manufacturing), but such "department gross margin" should not be viewed as net earnings. Needless to say, the net income and surplus sections of the complete income report cannot be broken up and attached to departmental statements.

In addition to the regular periodic report of departmental operations there are numerous detailed reports required, in some cases from day to day, which emphasize departmental activities. Examples are classified sales reports, reports of collections, reports of shipments, reports of purchases, production reports, and special cost compilations. To each general department head—purchasing agent, plant superintendent, general sales manager, credit manager, and so on—as well as to the official in

charge of each division, branch, or sales outlet or department, significant data must be made regularly available if the department is to function effectively, and from each of such heads, in the well-organized concern, the general management will require systematic reports of plans and of accomplishment. It may be added that the underlying and specialized reports and schedules necessary in internal administration need not be viewed as a part of the system of periodic financial reports for the enterprise as a whole.

Departmental statements of the balance-sheet type are rare. However, it may be desirable to prepare statements covering the departmental assets and liabilities of important branches and divisions having considerable operating and financial independence, and self-balancing books. In departments of less importance and independence, further, statements may be prepared showing the status of inventories and other assets associated with such departments.

**Cumulative and Average Statements.** The fluctuations in revenues, expenses, and profits shown by the short-period income report are often very sharp, and the desire on the part of business managements to minimize these movements and show a greater stability of earning power has led to the widespread adoption of such questionable practices as the arbitrary expansion and contraction of depreciation charges and the use of the "last-in, first-out" assumption in computing cost of sales and inventories (see Chapter VI). What is needed in this connection, how-

### WILTON COMPANY

#### Condensed Comparative Income Sheet

Years Ended December 31, 1939, 1940, 1941

(With Cumulative and Average Figures)

	1939	1940	1941	Cumulative	Average
Net Sales . . . . .	\$7,500,000	\$6,000,000	\$10,500,000	\$24,000,000	\$8,000,000
Operating Expenses . . . . .	6,000,000	5,200,000	8,600,000	19,800,000	6,600,000
Net Operating Revenue . . . . .	\$1,500,000	\$ 800,000	\$ 1,900,000	\$ 4,200,000	\$1,400,000
Interest Charges . . . . .	100,000	100,000	100,000	300,000	100,000
Net Before Income Taxes . . . . .	\$1,400,000	\$ 700,000	\$ 1,800,000	\$ 3,900,000	\$1,300,000
Federal Income Taxes . . . . .	200,000	100,000	270,000	570,000	190,000
Net Profit to Stockholders . . . . .	\$1,200,000	\$ 600,000	\$ 1,530,000	\$ 3,330,000	\$1,110,000
Dividends . . . . .	1,000,000	750,000	1,250,000	3,000,000	1,000,000
Balance to Surplus . . . . .	\$ 200,000	\$ 150,000*	\$ 280,000	\$ 330,000	\$ 110,000

\* Deficit.

In some circumstances special statements covering the entire history of the enterprise from date of organization are useful. Such a statement may show totals for all the principal elements of the income sheet, or may be confined to net profits, dividends, and surplus. A complete summary of surplus from the company's inception, including all reservations, distributions, and adjustments, is a helpful exhibit that should be more widely employed. In some cases a summary of the history of the entire stockholders' equity, including capital as well as surplus, would be very informative and promote the sound reading and interpretation of current reports. Another form of historical cumulative statement is that of receipts and disbursements. The example given below is such a cash statement taken from a published report of the Quincy Mining Co.

From Capital Stock paid in . . . . .	\$ 200,000.00
"    "    "    (Scrip) . . . . .	1,250,000.00
"    "    "    10,000 shares increase . . . . .	700,000.00
"    40,000 shares Treasury Stock . . . . .	500,000.00
"    Capital Stock 50,000 shares increase . . . . .	1,250,000.00
"    "    "    25,421    "    "    . . . . .	635,525.00
	<hr/>
	\$ 4,535,525.00
"    Proceeds of copper and silver (765,477,355 pounds copper) . . . . .	122,352,433.99
"    From Interest . . . . .	785,168.52
"    Profit on sale P.L. & R. Impr. Co. Stock, etc. . . . .	103,775.16
"    Sales of Real Estate, Hancock, Michigan . . . . .	310,072.74
"    Installment payments not completed . . . . .	13,088.00
	<hr/>
	\$128,100,093.41

<i>Expenditures</i>	
For Expenditure on Location previous to 1856. . .	\$ 42,097.98
" " " Quincy vein 1858, not now worked	55,000.00
" Openings on 3,800 feet Pewabic vein, extending to Portage Lake, preparatory to future work	11,500.00
" Real Estate and permanent improvements . . .	10,508,479.53
" Mining, smelting and marketing copper, and all incidental costs . . . . .	<u>90,183,074.60</u>
	<b>\$100,800,152.11</b>
Balance . . . . .	<b>\$ 27,299,911.30</b>
Deduct dividends declared Nos. 1 to 127 . . . . .	<u>27,002,500.00</u>
Balance as per statement of assets and liabilities	<b>\$ 297,411.30</b>

The other statement referred to in this example is reproduced on page 96.

**Hypothetical Statements.** In special situations financial statements are sometimes prepared that are hypothetical in the sense that they include the effect of transactions contemplated or predicted but not fully consummated. The most familiar case is the balance sheet designed to reflect the effect of proposed new financing. A company has made plans, for example, to issue additional capital stock or bonds for the purpose of reducing floating debt, expanding plant, or in some other connection, and at some stage in the procedure it becomes desirable to prepare a statement to interested parties showing how the concern will stand if and when the refinancing is effected. A balance sheet prepared for this purpose usually follows the regular form, its hypothetical character being indicated clearly in the main heading. Like the ordinary balance sheet it is based upon the accounts of the company, with such modifications as result from incorporation of special work-sheet entries representing the proposed transactions. In general public accountants object to preparing and certifying such statements unless the transactions contemplated have been definitely provided for by binding agreements between responsible parties and will presumably be consummated in a relatively short time. In any event care should be taken in preparing such reports to attach reservations and explanations which clearly indicate the nature of the statement. The following illustrates the type of general heading which may be used:

**M COMPANY**  
Condensed Balance Sheet  
As of December 31, 1941

(After giving effect to the contemplated issue of first-mortgage, 5% bonds in the face amount of \$5,000,000, at a price of 101 and accrued interest, and the application of the proceeds to retire outstanding obligations, expand working capital, and extend plant. See accompanying schedule of proposed disposition of proceeds.)

The term "pro forma" is sometimes included in the caption of the hypothetical statement, to emphasize its peculiar character, but this practice is not particularly helpful, especially in view of the fact that "pro forma" is often applied to statement outlines in which no actual figures are displayed.

A variation occurs when it becomes desirable to include the effect at some important date, such as the close of the fiscal period, of major financial transactions which were in process at that time and have been completed prior to the date on which the statement is actually prepared. A balance sheet of this type is hypothetical only in the sense that the condition at the stated date has been modified in the light of subsequent events. In issuing such reports care must of course be taken to make full disclosure of the nature of the statement, and where other events have transpired since the formal date of the statement which in any way nullify the effect of the financing, or otherwise alter the situation in a material way, the statement is misleading unless such other happenings are included in the picture.

The hypothetical income sheet normally shows (1) either the last regular statement as it would have appeared if modified by the effect of major transactions and changes in conditions which are in process or (2) estimated figures for the next fiscal period assuming that the contemplated changes are carried through. Evidently the income sheet of the second type is truly hypothetical and should be presented and taken for nothing more than what it is—an estimate, more or less carefully prepared.

Hypothetical statements are often prepared to show results of proposed consolidations, mergers, and various types of reorganizations.

**Forecasted Statements.** In connection with budgetary programs forecasts of income and financial position are often prepared and presented in statement form. Such estimated statements in general follow the pattern of the regular reports, but provision is usually made for comparison of the forecasts with the results achieved. The budget statements are primarily of importance to the officials charged with the administration of the enterprise and are not ordinarily included in reports to stockholders, governmental units, or other interests somewhat removed from the immediate problems of management. In view of their character as estimates the amounts appearing in budget statements are often exhibited in round figures.

The illustrations shown on pages 107-109 suggest the nature of the forms used.

The forecasted statements should be fully coordinated with and epitomize the underlying budgets of sales and other revenues, purchases, production, overhead costs, construction, receipts and disbursements, etc.

Further, although based upon estimates their preparation should follow lines of systematic procedure as in the case of the reports that are drawn from the records of actual transactions. In this connection a work sheet showing the ledger condition at the beginning of the budget period, an abstract of estimated transactions for the period, resulting trial balance, estimated adjusting entries, and data for the estimated statements may be used to advantage.

## M COMPANY

## ESTIMATED CONDENSED BALANCE SHEET

As at January 31, 194\_

(Prepared January 1, 194\_)

<i>Assets</i>	Estimated	Actual	Difference
Current:			
Cash . . . . .			
Accounts receivable . . . . .			
Notes receivable . . . . .			
Marketable securities. . . . .			
Inventories:			
Materials and supplies. . . . .			
Work in process . . . . .			
Finished goods . . . . .			
Total Inventories . . . . .			
Prepaid expenses . . . . .			
Total Current Assets . . . . .			
Plant and Equipment:			
Land and buildings . . . . .			
Machinery and equipment . . . . .			
Less reserve for depreciation . . . . .			
Net plant value . . . . .			
Total Assets . . . . .			
<i>Liabilities and Stock Equity</i>			
Current Liabilities:			
Accounts payable . . . . .			
Notes payable . . . . .			
Accrued liabilities. . . . .			
Dividends payable . . . . .			
Reserve for Federal taxes. . . . .			
Total Current Liabilities . . . . .			
Fixed Liabilities:			
Bonds outstanding . . . . .			
Total Liabilities . . . . .			
Stock Equity:			
Capital stock . . . . .			
Surplus . . . . .			
Total Stock Equity . . . . .			
Total Liabilities and Stock Equity . . . . .			



## ESTIMATED INCOME STATEMENT

Month of January, 194\_  
(Prepared January 1, 194\_)

	Estimated	Actual	Difference
Sales (net) . . . . .			
Factory Cost of Sales (see statement of estimated factory cost) . . . . .			
Selling Expense:			
Salaries of executives . . . . .			
Salaries of salesmen . . . . .			
Clerical expense . . . . .			
Commissions . . . . .			
Traveling expense. . . . .			
Other selling costs. . . . .			
Advertising . . . . .			
Total Selling Expense . . . . .			
General Expense:			
Salaries of officers . . . . .			
Traveling expense. . . . .			
Office salaries . . . . .			
Office supplies and expense . . . . .			
Telephone and telegraph. . . . .			
Rent of office building . . . . .			
Legal services and auditing . . . . .			
Other general costs . . . . .			
Total General Expense . . . . .			
Total Operating Expenses . . . . .			
Net Operating Revenue . . . . .			
Other Income:			
Interest earned . . . . .			
Profit from sale of securities. . . . .			
Total Net Income . . . . .			
Interest on bonds . . . . .			
Net Profit before Federal Income Taxes			
Estimated Federal Income Taxes . . . . .			
Net Profit for Month . . . . .			

**Liquidation and Reorganization Statements.** The processes of liquidation and reorganization, controlled in large measure by technical legal requirements, give rise to procedures and statements having some special features. In the case of either voluntary dissolution or liquidation through a legally appointed receiver or trustee in bankruptcy, the statement of financial condition prepared at the beginning of the period of liquidation may well include estimates of the realizable values of the various assets

## ESTIMATED FACTORY COST

Month of January, 194\_

(Prepared January 1, 194\_)

	Estimated	Actual	Difference
Materials inventory January 1 . . . . .			
Materials purchased during month . . . . .			
Materials inventory January 31 . . . . .			
Materials used in production . . . . .			
Direct labor . . . . .			
Factory expense:			
Superintendence . . . . .			
Watchmen . . . . .			
Engineers and firemen . . . . .			
Factory clerks . . . . .			
Other indirect labor . . . . .			
Power . . . . .			
Factory supplies . . . . .			
Repairs . . . . .			
Depreciation . . . . .			
Insurance . . . . .			
Taxes . . . . .			
Total Factory Expense . . . . .			
Total Production Cost . . . . .			
Work in process and finished goods, January 1 . . . . .			
Work in process and finished goods, January 31 . . . . .			
Factory Cost of Sales . . . . .			

and should emphasize the positions of secured creditors, general creditors, and proprietary interests with respect to the available resources. At the conclusion of the period of liquidation the receiver or other party in charge must issue a report showing the results of any ordinary operations or activities which may have been carried on during the period, the losses and gains (if any) arising from the process of disposing of the assets, the special costs of liquidation, the payments made to creditors, and the distributions (if any) of residual assets to stockholders or owners. In the event of protracted proceedings interim progress reports may be required.

Upon appointment of the liquidating officer an inventory must be taken of the assets, and any liabilities not on the books must be determined. The next step is the preparation of the preliminary report of condition, or "statement of affairs." See pages 110-111 for an illustration of such a statement. In this illustration it is assumed that ordinary adjusting and closing entries have been made on the Company's books as of the date given, but that the estimates of realizable values and the data of additional receivables and payables resulting from the special examina-

tion made by the receiver have not been so recorded. The usual classifications and arrangements are not stressed in this type of report, but emphasis is laid upon realizable values and the application of such values in meeting the claims of the various classes of creditors. In the example

### ROTOR POWER COMPANY—L. B. TRACY, RECEIVER

#### Statement of Affairs

December 12, 1941

<i>Assets</i>			
	<i>Book Value</i>	<i>Realizable Amount</i>	<i>Esti- mated Losses</i>
Cash . . . . .	\$ 3,000	\$ 3,000	
Securities . . . . .	10,000	\$ 9,000	\$ 1,000
Less Amount Applicable to Secured Notes . . . . .		9,000	
Accounts Receivable . . . . .	\$75,000		
Less Allowance for Bad Debts . . . . .	5,000	70,000	
Good . . . . .	\$25,000	\$ 25,000	
Doubtful . . . . .	25,000	12,500	12,500
Uncollectible (net) . . . . .	20,000		20,000
	<u>\$70,000</u>		
Notes Receivable and Accrued Interest. Additional Receivables * . . . . .	5,150	5,150	
Merchandise . . . . .	60,000	100	100 **
Prepayments . . . . .	500	40,000	20,000
		200	300
Land . . . . .	40,000	\$ 50,000	10,000 **
Buildings . . . . .	\$50,000		
Less Allowance for Depreciation . . . . .	10,000	25,000	15,000
		<u>\$ 75,000</u>	
Less Mortgage Payable and Accrued Interest . . . . .		56,000	
		<u>\$ 19,000</u>	
Equipment . . . . .	\$30,000		
Less Allowance for Depreciation . . . . .	12,000	18,000	5,000
Patents . . . . .		50,000	50,000
Total Value of Unpledged Assets . . . . .		\$109,950	
Preferred Claims (see liability side) . . . . .		10,000	
		<u>\$ 99,950</u>	
Estimated Liquidation Expenses . . . . .		5,000	
Available for Unsecured Creditors . . . . .		\$ 94,950	
Estimated Loss to Creditors . . . . .		45,850	
	<u>\$296,650</u>	<u>\$140,800</u>	<u>\$121,700</u>

*Liabilities*

		<i>Book Value</i>	<i>Amounts Unsecured</i>
Preferred Claims (deducted on asset side)			
Taxes . . . . .	\$ 8,000		
Payrolls . . . . .	2,000	\$ 10,000	
Accounts Payable . . . . .		140,000	\$140,000
Additional Accounts Payable * . . . .			300
Notes Payable and Accrued Interest . .		9,500	
Covered by Pledged Securities (de- ducted on asset side) . . . . .	\$ 9,000		
Not Covered . . . . .	500		500
	<u>\$9,500</u>		
Mortgage Payable and Accrued Interest (deducted on asset side) . . . . .		56,000	
Capital Stock—Par . . . . .	\$100,000		
Less Deficit on Books . . . . .	18,850	81,150	
		<u>\$296,650</u>	<u>\$140,800</u>

\* Not on books; determined by receiver's inventory and examination.

\*\* Estimated gain or offset to loss.

given, the entire equity of the stockholders is wiped out and the general creditors suffer a substantial loss. The "preferred claims," it may be noted, are in general liabilities which, though not secured by specific assets, outrank the rights of the general creditors.

The so-called "deficiency account," a schedule showing the origin of the estimated loss to creditors, is traditionally prepared to supplement the "statement of affairs." The following is a condensed account of this type:

### ROTOR POWER COMPANY—L. B. TRACY, RECEIVER

#### Estimated Deficiency Account

December 12, 19\_\_

Estimated Losses * . . . .	\$121,700	Stock Equity per Books * . .	\$ 81,150
		Estimated Loss to Creditors *	45,850
Estimated Expenses of Liq- uidation . . . . .	5,000		
Additional Liabilities . . . .	300		
	<u>\$127,000</u>		<u>\$127,000</u>

\* See accompanying report of condition.

On page 112 is shown a statement of "progress in liquidation" taken from the 1939 report of the trustees for Simms Petroleum Co.

Cash and U. S. Government Securities (at cost), December 31, 1938 . . . . .		\$ 407,000.82
Additions:		
Received from Tide Water Associated Oil Company on account of sale price of Simms Oil Company stock (excluding amount withheld to apply on warranty liability) . . . . .	\$539,205.64	
Escrow fund (established in connection with sale of Simms Oil Company stock) released to Simms Petroleum Company . . . . .	157,527.05	
Received on liquidation of Sobrantes Oil Corporation, for stock and advances . . . . .	2,000.00	
Decrease in notes, accounts and accruals receivable . . . . .	4,036.08	
Realized on collection of accounts previously charged off . . . . .	3,577.30	
Realized on sales of fixed property . . . . .	421.00	706,767.07
Total . . . . .		\$1,113,767.89
Deductions:		
Excess of expenses over income for year (excluding portion of profit of Sobrantes Oil Corporation) . . . . .	\$ 15,653.13	
Estimated federal income tax for year, charged against reserve . . . . .	6,091.13	
Miscellaneous debit adjustments in sale price of Simms Oil Company stock, principally representing cost of defending certain litigation against Simms Oil Company (net) . . . . .	9,647.33	
Paid to Tide Water Associated Oil Company in connection with release of escrow fund . . . . .	5,000.00	
Decrease in current liabilities (excluding reduction of \$17,420.84 resulting from reversal of tax and interest accruals of prior years) . . . . .	870.77	37,262.36
Balance . . . . .		\$1,076,505.53
Less—dividends in liquidation, paid as follows:		
\$.50 per share paid April 11, 1939 . . . . .	\$231,825.00	
.50 per share paid July 11, 1939 . . . . .	231,825.00	
.50 per share paid December 11, 1939 . . . . .	231,825.00	695,475.00
Cash, December 31, 1939 . . . . .		\$ 381,030.53

At the conclusion of the period of liquidation the receiver or other party in charge must present a final report of his stewardship to the proper legal authority. The traditional form of final report is the "charge and discharge" type of statement. Such a statement consists essentially of a balanced schedule in which the receiver "charges himself" with all resources taken over and all additional values such as incomes earned and gains realized in liquidation for which he becomes responsible, and "credits himself" with all distributions and claims paid, together with all costs and losses suffered during liquidation.

When a corporation goes into voluntary liquidation, for whatever reason, the shareholders are entitled to a final report clearly summarizing the liquidating operations.

In a receivership resulting in reorganization rather than liquidation the

receiver takes over and operates the business during the period of adjustment, and reports of operation and condition under these circumstances may well follow the usual forms. As in the case of liquidation the receiver must make a final report of stewardship, including a showing of the assets and liabilities turned back to the reorganized enterprise.

Reorganization procedure has been modified at important points during recent years by successive changes in the law of bankruptcy, changes designed particularly to simplify and expedite the process and to afford greater protection to investors. Under the Act of 1938 (the "Chandler Act") the Securities and Exchange Commission enters the procedure in an advisory capacity in large corporate failures and reorganizations. However, the types of accounts and statements required of the trustee have not been materially affected by the new developments.

**Other Special-Purpose Statements.** Any financial report designed to serve a special purpose should be prepared in the form that will present the pertinent data most effectively to the particular party or parties interested. Thus statements of condition prepared primarily for a particular class of creditors may well emphasize the excess of assets over all equities which outrank the liabilities in question. Likewise an income sheet may be constructed to emphasize the position of a particular equity in relation to income, to show—to put the matter more definitely—the amount by which the available earnings exceed the particular interest or dividend requirement, or the number of times the required amount is contained in earnings available for this purpose.

The following is an example of a statement taken from a corporate report which stresses the amount of "net worth" and its representation in the assets.

#### BOOK VALUE OF NET WORTH

<i>Assets and Liabilities</i>	<i>Book Value</i>	
	<i>Total</i>	<i>Per Share</i>
Cash and Marketable Securities, Less Liabilities . . .	\$ 1,689,547.98	\$ 0.90
Receivables . . . . .	7,682,392.55	4.08
Inventories . . . . .	10,549,080.64	5.61
<b>NET CURRENT ASSETS . . . . .</b>	<b>\$19,921,021.17</b>	<b>\$10.59</b>
Plant Assets . . . . .	16,229,463.39	8.62
Miscellaneous Assets . . . . .	341,296.94	0.18
<b>NET WORTH . . . . .</b>	<b>\$36,491,781.50</b>	<b>\$19.39</b>

In valuations and analyses for rate-making and other purposes accountants and engineers are often called upon to present specialized

statements dealing with such matters as historical property costs, estimated replacement costs, depreciation, capital structure, and working-capital requirements.

Statements are prepared on a wide range of special occasions. The principal examples—including situations referred to in preceding pages—are: organization, borrowing or refunding, changing capital structure, contests for control among stockholders, investigations by investment trusts or other investors, audits for tax purposes, labor disputes and arbitrations, stock listing, registration with Securities and Exchange Commission, rate cases, reorganization, merger, appraisal for purpose of purchase or sale, and liquidation. In addition, occasions often arise in which managements require special reports in connection with the problems of internal administration. For most special purposes, it should be borne in mind, the statements desired are of the balance-sheet and income-sheet type, adapted to suit the requirements of the particular situation, or represent elaborations of phases or sections of the principal reports.

#### QUESTIONS

1. Give several examples of "sectional" financial statements.
2. Describe the statement of working capital. What is meant by the "current-account" balance sheet?
3. Describe the type of funds statement sometimes referred to as the "analysis of changes in current position."
4. In what fields are cash reports often issued as the principal financial statement? Contrast the typical cash statement and the income sheet.
5. Discuss the uses and limitations of a departmental income statement.
6. Explain the nature and significance of "cumulative" and "average" income reports.
7. State the nature and uses of the "hypothetical" statement. The "forecasted" statement.
8. What is the "statement of affairs"? The "deficiency account"? A "charge and discharge" statement?
9. List a number of occasions requiring specialized reports.

## V

### INVENTORY PROCEDURE

**Nature of Inventories.** The term "inventory" comprehends all types of merchandise, materials, work in process, finished products, and supplies. Merchandise or "stock in trade" includes goods or commodities of all classes—productive equipment as well as consumers' goods—held for sale by wholesalers, retailers, and other groups of distributors. Materials are goods purchased by the converter or manufacturer on which technical operations must be undertaken prior to their disposition in the form of finished product or utilization in some other manner. In one case it may be iron ore, in another pig iron, in another steel cable, in still another fabricated parts such as car wheels; and within the single concern "materials" may range from basic "raw" commodities to complex manufactured goods which are to be incorporated in the product. By "work in process" is meant all goods upon which manufacturing operations have been performed by the owner and on which additional operations are required prior to disposition. The unit of work in process is variously defined, depending upon the nature of the materials and product, the method of manufacturing, the type of cost system employed, etc.; it may be the individual piece or commodity, the job or order, the stage or process, or the periodic lot or run. The finished products of extractive industries and of converters and manufacturers are evidently closely akin to merchandise and likewise embrace a great variety of goods ranging, for example, from lumber to radio sets. Supplies are essentially auxiliary materials—materials which facilitate operations but are not physically embodied in product. The principal subdivisions are factory supplies, packing and delivery supplies, and office supplies.

Some accountants, as was mentioned in Chapter I, prefer to treat supplies as "deferred charges" rather than as an element in inventories, primarily on the ground that such assets are neither salable merchandise nor goods in process of preparation for sale. It is clear, however, that the activities of acquiring, issuing, and inventorying supplies are very similar to those arising in connection with the handling of merchandise or direct materials; and it is also evident that supplies contribute to production in the economic sense just as definitely as do materials that



are prominent components of the physical output. The value of standard supplies, too, is usually no more subject to shrinkage, in the event of liquidation, than the value of materials and other acknowledged inventory components.

Construction work in process, growing nursery stock, stores of public utilities, and many other special classes of property are often referred to as inventories. Occasionally assets such as furnishings, tools, and other types of short-lived equipment, subject to depreciation, are treated as inventories—a practice not to be encouraged.

Inventories represent a fairly distinct group of current assets. At any point of time the inventories express the amount of funds of the enterprise embodied in the stream of short-lived goods essential to the carrying on of the ordinary operations of the business. A distinctive feature of inventoriable commodities as opposed to units of buildings and equipment is utilization or other disposition by definite installments or pieces. A pile of lumber, for example, is issued from stores in definite units or sections which are either sold or are consumed in the fabrication of product; a factory machine, on the other hand, is used in its entirety throughout its life to furnish services and is physically consumed in this process only to the extent of wear and tear or other form of disintegration. In connection with presentation in financial statements the degree to which goods are current is an important consideration. It is usually recommended that the inventories reported as current assets should be restricted to goods which may be expected to be eliminated in the normal course of activity within a period of not more than one year from the date of the statement. In fields where very slow-moving goods are regularly encountered, however, relaxation of this rule is justified.

**Purchasing.** Inventory procedure, in a broad sense, begins with the purchasing of merchandise or materials. The first step is the preparation of the program or budget of purchases—an essential requirement of sound buying and stocking. Planning purchases for the year or season, and scheduling weekly or monthly deliveries to stock, depend particularly upon the budget of sales and forecasted schedule of shipments to customers, coupled with turnover data and other indications of requirements. The work of the purchasing department is also facilitated by current reports of quantities in stock—an important service derived from a system of continuous inventory. In the trading field buying and selling schedules are closely related, despite the fact that goods are commonly bought for stock rather than to fill specific orders. In manufacturing the control of purchases is often made difficult by lack of synchronization of production and sales schedules and the necessity of avoiding interruption of operations. Among special points to be considered in scheduling

purchases are cost of placing orders, variation in unit prices and delivery charges with size of shipments, and storing and carrying costs.

Buying and receiving procedure varies with the size and nature of the business. The following outline indicates the principal features of representative practice.

1. *Requisitioning.* Observing that the point of minimum stock has been reached, "balance-of-stores" clerk initiates requisition on purchasing department. Copies of requisition are also furnished to accounting and stores departments. Purchase-requisition clerk checks amount requisitioned against standard order quantity and prepares memo showing vendors' names, and data of recent purchases.

2. *Ordering.* On basis of requisition and accompanying memo, and assuming that any necessary preliminary negotiations with vendor have been completed, the purchase order is prepared by order clerk. The original goes to vendor and copies are supplied to traffic, receiving, and accounting departments, as well as to balance-of-stores clerk. Appropriate entries are made in "ordered" column of stores ledger and in purchase-order register.

3. *Tracing.* Order-tracing clerk is responsible for following order prior to receipt, including keeping of record of vendor's acknowledgment and other pertinent data. Where a separate traffic department is maintained this department is charged with responsibility from date of shipment to receipt.

4. *Receiving.* Receiving department is charged with receiving and inspecting goods, checking of shipment against purchase requisition and order, and accepting or rejecting shipment, in whole or in part. Copies of receiving report are supplied to stores, purchasing, traffic, and accounting departments. When goods reach the storesroom, under some routines, a standard form of receipt is prepared, copies of which are supplied to balance-of-stores clerk and accounting department as basis for entries in stores ledger and controlling accounts.

5. *Adjustments.* Rejection of goods is usually due either to damage in transit or failure to meet requirements of order. Negotiations with vendor are conducted by purchasing department or, in some cases, traffic department. Receiving department packs goods to be returned and prepares returned-goods memo, copies of which go to accounting and purchasing departments. Credit memos from vendors may well be routed through purchasing department for verification by adjustment clerk and preparation of copies required. Where invoices have not yet been released for payment, adjustment bills should be attached, authorizing payment of corrected amount.

**Cost of Purchases.** The immediate cost of goods purchased is usually

considered to consist of the cost shown by the invoice plus the transportation charges. Buying cost, represented by salaries of purchasing agents and the clerical and other charges associated with the activities of ordering and receiving, are seldom included in the costs of specific lots as recorded.

In recording invoice cost the problem of interpreting discounts commonly arises. If settlement is made within a specified minimum period the amount of the bill is the "net" price; if payment is made after the discount lapses the liability is measured by the "gross" price. Occasionally the vendor offers a "sliding scale" of discounts.

The best procedure in all cases is to accept the lowest price provided by the invoice as the cost of the goods. Net prices are substantially on a cash basis and therefore represent effective costs. It is the net price that the vendor generally expects to collect and the buyer expects to pay. Failure to accept all discounts offered, indeed, is evidence of careless management or precarious financial condition. There is no excuse for the practice—unfortunately still common—of treating gross prices as genuine costs and purchase discounts as an item of income. Realized income cannot arise through the operation of buying.

The point is often advanced that the use of net prices as the basis of the immediate record of cost is inconvenient in view of the way in which invoices are commonly written. There is not much force in this contention. It is not difficult to induce the vendor to list net amounts on the invoice in as much detail as gross amounts are shown, and where this cannot be arranged the necessary computations can be readily made in the buyer's office in the process of preparing the invoice for posting. The thoroughgoing use of net prices, in fact, will result in a considerable simplification of purchasing and inventory procedure considered as a whole. If only net prices are recognized at the outset no adjustments whatever are required where payment is made—as it should be—within the discount period. If a discount is neglected the payment of the bill on the gross basis automatically brings to light the loss represented by the lapsed discount—a loss buried in apparent cost of goods under the conventional gross-price procedure. Charging the merchandise or materials accounts with net prices is especially advantageous in that this practice facilitates the computation of inventory on the basis of cash cost.

For a full discussion of purchase discounts and allied adjustments, including comparison of gross-price and net-price bases of recording, see Chapter XIV of *Essentials of Accounting*.

Transportation and handling costs often must be broken down for entry in classified stores records. This fact is doubtless in part responsible for the common practice of dealing with such charges in terms of

periodic totals for inventories and cost of sales in lieu of a detailed, day-to-day assignment. The invoice costs themselves may also require analysis and rearrangement for posting to the underlying accounts.

**Application of Operating Charges.** It is clear that the costs of buying, transportation, handling, storing, etc., are not immediate charges to revenues but should be treated, in so far as is feasible, as attaching to the flow of goods cost. In manufacturing, moreover, the inventories of work in process and finished stock are built up in important measure from labor and other operating charges. This means that inventories in general should be interpreted as representing a pool of cost factors, properly assignable to future revenues, rather than as the bare cost of purchased commodities.

It does not follow, even for the large departmentalized organization, that all costs incurred which may have a bearing on future sales should be treated as applicable to inventories. It is not practicable to force the entire mass of operating charges through the cost-of-goods funnel, with periodic division into inventory balances and cost of sales. Many of the so-called overhead costs have no definite, ascertainable relation to the flow of goods, and purely arbitrary assignments should not be encouraged. Costs incurred at or after the point of sale and revenue recognition, further, have no proper place in the cost of goods at any stage.

The problem of applying operating charges to cost of goods involves a broad range of considerations of internal control and cost analysis, particularly in manufacturing. Assuming that the costs of materials are fully accumulated to the point of withdrawal from stock to the production line, there remains, first, the task of following such costs closely in terms of such units as orders or jobs, operating centers or departments, kinds of product, and periodic aggregates of output. The second main phase of the work consists of classifying the costs of factory labor, supervision, power, maintenance, insurance, depreciation, etc. by production and service departments and other significant divisions. In this connection elaborate methods and procedures for tracing direct charges and assigning the overhead or indirect charges have been developed in many large organizations. The final step is the assembling of the various parts of the cost stream by product groupings and the separation of the cost of goods delivered from inventory balances.

See comments on cost sheets later.

**Storing and Issuing.** Systematic storeskeeping, an essential factor in a sound program of inventory handling, has become a familiar characteristic of present-day operation. Procedures vary with the size and nature of the enterprise but certain general features are widely applicable. Storing begins with receipt of goods from the receiving department (as-

suming a separation of receiving and storing functions). The incoming goods are checked against the storeskeeper's copy of the receiving report and are then placed in the storesroom in the proper racks, bins, or other types of compartments or containers. Appropriate entries must be made on the stores cards or sheets and on the rack or bin tags. See suggestive forms on this and the next page. The source of the entries in the stores accounts may be the receiving report, the audited invoice, or some other type of supporting document, depending upon the circumstances. Assuming an adequate system of stores ledgers, the entries on the bin tags are restricted to quantities. As a rule a separate stores account should be maintained for each class of materials or supplies. This means that the total number of sheets, in the large manufacturing company, may run into the thousands. Likewise under systems of "unit stock control," employed by some department stores, the stock cards are very numerous as well as detailed.

BIN CARD				
Symbol		Lot No.		
Description				
Date	Ref.	Quantities		
		Received	Issued	Balance

A type of record which is sometimes used for miscellaneous and irregular stores provides a single line for each item or lot. Bulky materials such as coal and brick, usually stored in yards in the open, require special treatment. In the case of emergency shipments, and in other special situations, materials received may be placed in operation without actually going through stores, but even in such circumstances it is desirable to pass the cost through the stores records. Materials that have been manufactured by the enterprise itself, and are placed in stores pending return to production at the appropriate point, should be received and

[illegible]

recorded—assuming the necessary cost data are available—in substantially the same manner as purchased materials.

The major condition in controlling issues is that no goods shall be removed from stores (in yard, warehouse, or stockroom) except to fill properly authorized requisitions. See illustrative form on this page. As requisitions are filled entries based thereon are recorded on the bin cards by the stores clerk, and from day to day the accumulated requisitions are posted to the “issued” section of the stores-ledger sheets. A recapitulation of requisitions affords a basis for preparation of the journal voucher to be posted to the general-ledger accounts. Copies of filled requisitions, or a summary thereof, also furnish the cost clerk with a means of posting appropriate entries to underlying cost sheets.

This general procedure, developed primarily in the manufacturing field for handling materials and supplies, is equally useful in controlling transfers of merchandise from reserve stock to the shipping room to fill orders.

The pricing of requisitions, a procedure which has an important bearing on the valuation of inventories and the measurement of cost of sales, is discussed in the next chapter.

PRODUCTIVE MATERIAL REQUISITION					
Req. No. _____		Date _____			
Acct. No. _____		Required for Dept. _____			
Description	Quantity	✓	Unit Price	Amount	✓

Why Drawn \_\_\_\_\_  
 Dept. No. \_\_\_\_\_ Deliv'd By \_\_\_\_\_ Stock \_\_\_\_\_  
 Authorized \_\_\_\_\_ Received \_\_\_\_\_

**Checking and Adjusting Stores Accounts.** In addition to the comprehensive verification and balancing required on the occasion of the periodic inventory, the stores accounts should be frequently checked against

goods on hand so that discrepancies will be promptly disclosed and reliability of current reports of balances will be assured. Discrepancies may be due to errors in recording charges or issues; to breakage, misplacement, or theft; to changes in weight or volume owing to passage of time and weather conditions. It is of course important that the cause of any substantial shortage (or overage) be ascertained and reported. The accounting treatment accorded the adjustment may vary with the conditions as determined.

Goods are sometimes returned to vendor for one reason or another after being placed in stores and recorded, and in this situation appropriate adjustment of stores accounts is required. (Occasionally it is necessary to adjust stores accounts because of special allowances made by vendors.) Returns of merchandise by customers must be charged back to stock and credited to cost of sales, assuming that entries in the stock ledger were made when the goods were shipped. Returned goods that are in any way spoiled or damaged should be charged to stock at a reduced value, and it is advisable that any large loss be isolated instead of being buried in the department's cost of sales. Another occasion for adjustment is found in the return to stores of materials or supplies that have been issued to operating departments. In this situation a material credit slip is issued which forms a basis for the required entries. All types of adjustments, it is scarcely necessary to state, should be authorized by formal memoranda.

Original charges to stores accounts, based on invoices, require adjustment where transportation and handling costs are included as separate items.

Where definite maximum and minimum quantities and a standard ordering point have been established for each class of goods, frequent examination and balancing of stores records are necessary to ensure observance of prescribed conditions. The points of low stock are particularly convenient occasions for the verification of accounts by checking against actual stores.

**Recording Work in Process.** In the case of the flow of work in process it is seldom feasible to employ a formal storing and issuing procedure as the work moves from machine to machine or stage to stage. Here tracing and control are secured through operating-cost records. The central record in this connection is the cost sheet, the form on which are accumulated the charges for materials, labor, and manufacturing overhead or burden. Costs of materials and supplies, as has been indicated, are based upon the data furnished by the requisitions on stores and allied forms. Labor costs are generally accumulated by means of time slips—records which indicate the kind of labor, the time worked, the department to



be charged, and other pertinent details. Overhead is accumulated in manufacturing expense accounts, classified in kind and in some measure by using departments. At the end of the period such accounts are closed directly into production department overhead accounts, or to service department accounts which in turn are applied to production accounts. The burden charges on the main cost sheets are commonly in the form of estimates and are not derived directly from the overhead accounts. The estimated charges are set up through the use of a technical suspense account, "overhead applied." Adjustment must be made periodically for the difference between the estimated overhead applied to each department and the amount finally accumulated for the department. Inventory figures are often based on estimated overhead, without regard to "underabsorbed" or "overabsorbed" manufacturing cost.

The way in which costs of work in process are grouped varies with the conditions of production. In some situations the specific job or order is the unit around which costs are collected. Here one cost sheet—subdivided by producing departments if desired—is prepared for each job. In other situations the significant unit is the periodic total for the particular process or class of product, and the cost sheet is appropriately modified. The specific job cost sheet is closed into factory cost of sales (where produced to order and shipped upon completion) or to finished goods (where produced for stock). Usually process or class cost sheets are closed directly into finished goods at the end of the period except for the amount of the inventory of work in process. Under process or class cost systems the costs of particular items of work are based upon averages computed for each department or stage of production.

**Recording Finished Goods.** Where production is strictly to order and shipment is regularly made upon completion, the application of full-fledged storing and issuing procedure to finished stock may be avoided. Where goods are produced in whole or in part for stock, or where there is normally a considerable interval between completion and consignment, the finished product must be placed in the stockroom or warehouse and controlled through a scheme of stores records. The charges to such records represent the accumulated costs of product turned over to stores by the manufacturing departments. If costs have been assembled by specific jobs the final total shown by the job cost sheet furnishes the cost of the particular unit or group of units to be charged to the controlling account and to the stock ledgers. Under operation, process, or class cost systems the average unit cost of finished goods for the month or other period is determined by dividing the total costs accumulated in the producing departments by the total quantity produced. Where continuous costing of finished work is not feasible the records covering goods com-

pleted must be maintained in terms of physical quantities only until costs are computed.

In preparing deliveries to customers goods are taken from finished stock only on properly authorized shipping orders. The costs of goods so drawn are chargeable to cost of sales. Where finished parts to be used in assembling product are stored with goods awaiting shipment, regular plant requisitions are used in making withdrawals from stores, and the costs involved are returned to the cost sheets covering work in process.

**Continuous Book Inventories.** In large enterprises, in merchandising as well as manufacturing, the continuous or "perpetual" inventory, in some form and degree, has become standard practice. By such an inventory is meant, in substance, a system of stores procedures and records so handled as to make it possible at any time to calculate the balance of goods on hand. Such a system can be most readily applied to standard materials and supplies, merchandise in reserve stocks, and finished goods—assuming the cost data are available—that are awaiting shipment. Its application to merchandise on the selling floor is limited, particularly where withdrawals through sale are very numerous and the individual amounts are small. To maintain a classified continuous inventory of work in process is peculiarly difficult, as this requires the day-to-day tracing and accumulation of the entire range of direct and indirect costs of production through all the successive processes and stages of operation.

A continuous physical inventory is usually more easily maintained than a continuous valuation, as this avoids the embarrassing problem of pricing issues from stores. It is worth noting, further, that a complete and classified record of quantities, without values, will supply the essential data to the purchasing department and is adequate for most purposes of day-to-day control.

**Periodic Inventories.** The complete periodic inventory, consisting of a full count and valuation, is needed by virtually all business concerns, including those employing a system of continuous book inventory. The scheme of stores accounting often fails to cover all elements of the inventory, and in any event a complete periodic check is an essential measure of verification. Further, questions of valuation policy, which inevitably arise in the preparation of financial reports, should be considered in terms of the transactions and operations of the entire period, and decisions reached in this connection may require adjustments throughout all sections of the inventory.

The interval between comprehensive inventories varies with the type of enterprise and managerial policies. At one extreme is the relatively rare daily inventory—in effect a form of continuous inventory; at the other is the inventory taken only at (or as of) the close of the main fiscal

period, usually the year. The former is not as a rule necessary (although perhaps desirable in specialized stores and departments handling high-value merchandise, readily tallied); the annual inventory is the minimum requirement consistent with sound accounting. In many concerns interim departmental inventories are regularly taken in addition to the comprehensive yearly or semiannual valuation. The frequency of such partial inventories will vary with the class of goods handled and the character of operations; in some departments the inventory is taken weekly or biweekly, while in others the monthly or quarterly inventory suffices. A few companies make use of a specialized inventory staff which is engaged continuously in taking either complete or check inventories in the various operating sections and departments, in which case the inventory program at the close of the fiscal period may be somewhat curtailed.

**Interim Estimates.** Where continuous book inventories are not maintained and careful interim inventories are not practicable, estimates of departmental or total stock on hand are often made for the purpose of general control of purchases, adjustments of sales policies, or for other reasons. Such an estimate may take the form of a cursory examination of stock by one or more persons thoroughly familiar with conditions, or it may be based primarily on computations drawn from the general accounts. To illustrate the latter possibility assume that the records of a trading concern show an inventory at the beginning of the year of \$200,000, purchases during the following month of \$60,000, and sales for the month of \$65,000. Assume, further, that the average percentage of markup for the month is estimated at 30% on the basis of records of preceding periods and knowledge of current conditions. Under these circumstances the sales figure of \$65,000 is 130% of the merchandise cost of goods sold, and such cost may therefore be estimated at \$50,000. Subtracting this amount from the sum of initial inventory and purchases, \$260,000, gives \$210,000 as the estimated cost of goods on hand. Estimates of this character, evidently, will not give reliable results where there are unusual conditions, and they should be used only with a full realization of their limitations.

**Preparation for Periodic Inventory.** Careful preparation for inventory taking tends to shorten the time required, reduce the cost, and make results more accurate, and is accordingly an essential phase of good inventory procedure. The entire program should be mapped out before the work begins, and in many cases the issue of printed instructions to all members of the inventory staff is desirable. The necessary cards and sheets should be prepared, with proper headings in view of the classifications to be followed. Mechanical equipment must be made available for

use in counting, weighing, measuring, and in tabulating and pricing the inventory. Attention should be given to the condition of storesrooms and other locations to be covered. All invoices and other papers in process affecting the general inventory accounts and the underlying stock records should—if at all feasible—be posted up to date. Of particular importance is the selection and organization of a competent force to do the work.

The matter of time deserves emphasis. Long shutdowns for the purpose of taking inventory are to be avoided, and frequently even a short interruption of operations is costly. The inventory process must therefore be expedited in every practicable way. Where there is a regular slack season or other periodic lull it is very helpful if the inventory can be taken at the time of reduced activity. In this connection is found a strong argument for more widespread adoption of the "natural" business year, in lieu of the calendar year, as the primary fiscal and accounting period.

In planning inventory procedure it is advisable that a distinction be drawn between the two main tasks, taking and pricing. By "taking" the inventory should be understood the ascertaining and recording in appropriate form of the physical quantities. "Pricing" consists of the process of converting the physical data into value terms for use in the accounts and statements. These divisions should be kept in mind in organizing the staff, and the work of taking the inventory should be outlined in such manner as to facilitate the task of pricing.

In preparing stores and storesrooms for the inventory it is advisable to segregate or earmark all damaged, deteriorated, and obsolete materials and merchandise, or goods that for any other reason have impaired usefulness or salability. As far as possible scattered merchandise should be brought together, and care should be taken to see that all stores are clearly marked and made readily accessible. Where feasible machines should be cleared and unused materials and supplies returned to stores. It is also desirable that the work of the receiving department be brought up to date.

As a rule the inventory should be taken and priced by a selected group of regular employees, familiar with the conditions in the enterprise, although employment of some outside help may be necessary. The number of persons required for each phase of the work should be determined, and a schedule of assignments prepared. The giving of detailed directions to the personnel before launching the inventory tends to make the work progress more smoothly and rapidly. To ensure completion of the task in the shortest possible time a number of shifts are sometimes employed, and overtime work is a regular feature of inventory taking.

Division of labor is as important in inventory taking as elsewhere. In addition to making use of the distinction between the main processes of physical measurement and valuation, a number of specialized functions may well be recognized in organizing the inventory staff, particularly in the large concern. Among these are form writing, form distribution and control, physical count and measurement, inspection and checking, classifying and coding, pricing (in the narrow sense), tabulating and summarizing, general planning and supervision. Such functions in turn can be subdivided if desired in the assignment of duties. In the physical-count section, for example, such distinct tasks as calling, listing, and checking are often recognized and assigned to particular members of the personnel.

The inventory should be planned and directed by an owner, officer, or other responsible person or persons. In large enterprises a special committee is sometimes organized to take charge of the work. Among those who may well be included in such a committee—in addition to the comptroller or other major accounting officer—are cost accountant, stores superintendent, factory superintendent, and head of purchasing department.

**What to Include in Inventory.** The principal cases about which a question may be raised are as follows: (1) goods in transit, either to or from concern in question; (2) goods ordered and segregated by vendor and, similarly, goods earmarked for particular customers; (3) merchandise either acquired or delivered on approval or under conditional sales contracts; (4) goods consigned to agents or goods acquired on consignment; (5) pledged or hypothecated merchandise; (6) advances on buying or selling orders. With respect to goods in transit strict application of the legal criterion, passing of title, would usually result in inclusion of purchased goods in the hands of a common carrier and exclusion of all merchandise that has been consigned to customers. Inclusion of purchases in transit, however, may be objected to on the ground that it is impracticable to take goods into inventory prior to actual receipt and acceptance. It is not seriously improper, under ordinary circumstances, if a concern consistently omits such goods in determining inventory and preparing statements. If it is desired to conform to the legal rule the proper procedure is to hold the inventory open for a few days so that purchased goods shipped up to inventory date may be received and checked before inclusion in the final figures. Since the entire process of taking and pricing the inventory is likely to require a week or more, such adjustment is usually readily made.

Purchase orders should not be included in inventory except in special cases where specific goods have been set aside or earmarked by the vendor

as belonging to the buyer, and similarly orders by customers should not in general be deducted from goods on hand. Such rules do not prevent calling attention to purchase commitments by statement footnotes—a most desirable procedure where losses are anticipated in connection with such commitments or other unusual conditions exist. The treatment of approval sales, installment sales, and other conditional deliveries is largely a matter of expediency. It is conservative practice to exclude the effect of such transactions from realized revenues and receivables, which is equivalent to retention of goods involved in the vendor's inventories. It is often more convenient, however, to account for conditional sales as actual sales, the cost of the goods being currently charged to revenues, and where experience shows that the great majority of such transactions become effective there is no serious objection to this practice. Similarly it may be expedient under certain conditions to treat conditional purchases as outright acquisitions.

As a rule goods in the hands of an agent should be included in the principal's inventory. Merchandise bailed or hypothecated should be included in the owner's inventory, the special condition being indicated in the balance sheet. Advances should not be confused with inventories although some accountants recommend that debit balances in creditors' accounts representing advances be classed with inventories rather than receivables in the statements.

In determining the inventory as of a given date a precise "deadline" should be established, and care should be taken to include the effect of all acquisitions and withdrawals prior to such date and exclude the effect of all transactions occurring thereafter. This means that during the inventory period—short or long—all movements of goods between departments as well as into and out of the business must be observed and noted.

**Inventory Forms.** The principal special forms used in taking the inventory are the inventory tag or card and the inventory sheet. (See illustrations on page 130.) With the card system, one card is used for each item or very narrow subdivision of stock, and inventory sheets are employed, if at all, for special classes of stock and in summarizing. This system has marked flexibility and facilitates sorting and classification, particularly where this work is done by machines. In many small establishments, on the other hand, the sheet form, with a line for each item or subdivision, is a convenient and adequate device.

The forms used should be adapted to the conditions and needs of the particular establishment. In many cases a distinct color or type of card or sheet is used for each main inventory division or department. Space may be provided on front or back of card for tallying. Some concerns employ cards with carbon copies attached, in which case either the

INVENTORY CARD		
Symbol _____	○	No. _____ Dept. _____
Inventory Card No. _____ Symbol _____ Dept. _____ Description _____ _____ Section _____ Bin _____ Result of Count _____ Made by _____ Checked by _____ Stores Record Quantity _____		
Quantity Accepted	Unit Cost	Inventory Value
Inventory Card No. _____ Dept. _____ Sec. _____ Bin _____ Made out by _____		

INVENTORY SHEET					
Department _____					No. _____
Called by _____					Date _____
Written by _____					Checked by _____
Location	Symbol	Description	Quantity	√	Unit Price

original or the copy is forwarded to those responsible for coding and tabulating. Another type of card is provided with a stub that remains attached to the goods until the entire inventory process is complete. Where tabulating machines are used a special perforated card may be employed as the original tag—a plan that requires care in handling cards

to keep them in a condition fit for tabulating—or an independent set of cards may be provided to which the data from the original tags are transferred before they are run through the machines.

Inventory cards or sheets should be distributed in numerical sequences, and all forms issued should be accounted for. To the extent feasible headings and descriptions should be written on cards prior to date of taking, as the time required in the storerooms can thus be materially shortened.

In large enterprises which have developed elaborate inventory routines numerous specialized forms, in addition to the cards or sheets proper, are employed. Examples are card receipt slips, inventory time reports, and summary of cards used, returned, and lost.

**Taking the Inventory.** In ascertaining physical quantities for various departments and classes of goods there commonly is need for all the familiar devices of counting, weighing, measuring, and estimating. Mechanical devices should be employed as needed. For each situation the most suitable method should be used. Unopened kegs of nails, for example, should be counted; nails in the bin should be weighed, measured, or estimated. Occasionally goods filed in regular tiers or pyramids can be counted by inspection and simple calculation without individual enumeration. The count is much facilitated if stock is stored in readily accessible fashion, with labels and marking tickets plainly exposed. Boxes and cartons with specified contents need not be broken unless there is some question as to condition or integrity. Estimate plays a large part in measurement of piles of coal and other basic materials and supplies, and, indeed, throughout the entire process of taking. This does not mean that mere guessing need be involved. The systematic estimate of an experienced person, specifically based on checking of stores records and adequate observation of physical conditions, is far removed from guessing, and often represents the best possible evidence of the amount of the inventory. Care must be taken to avoid omissions or duplications, especially where a particular class of goods is found in a number of locations, and perhaps intermingled with other types of merchandise. In general the work should start and end at definite points. A matter of first importance is clear description, and strict adherence to the prescribed classifications. The units of measure to be employed for the various classes of goods should be worked out in advance by the departmental foremen or other persons immediately in charge of the process of taking. Selection of appropriate units and designations is especially difficult in the case of work in various stages of completion. All goods in any unusual or special conditions—with respect to quality, stage of completion, or other feature—should be separately counted and recorded.



Movements of goods occurring during the inventory period should be reported on special forms.

The handling of the cards or sheets in the process of taking must be carefully controlled. As indicated above, the forms are numbered and issued in numerical sequences, and only the official forms are used in recording the original count. All forms should be issued from a central office and there should be no unauthorized transfers from one department to another. The receipt of forms in a particular department should be acknowledged by some responsible person. Where the force is divided into counters and writers the staff work in pairs, one person making and calling the count and the other listing the required data on the card. The writer must see to it that code number, lot number, and all other data required are clearly listed. Under some systems the cards are attached to the goods as the count proceeds and later collected for tabulation and pricing; under others the cards are placed in envelopes or other containers as they are written. Where the inventory sheet is employed in making the original count the forms may be handled in binders.

Those responsible for the inventory work in the various departments should remain in close touch with the actual process at all stages and by general inspection of the goods and observation of the written cards should roughly check the accuracy of the count as the inventory progresses. In addition precise spot-checking is necessary, and in certain departments a complete verification by second count may be expedient.

**Pricing and Summarizing Procedure.** Where merchandise is marked with selling prices such prices are often (always, under the "retail method" of valuation) recorded on the cards or sheets as the inventory is taken. Costs, however, are not usually marked on the goods, and hence pricing on any type of cost basis is a distinct operation which may well be undertaken by a separate section of the inventory staff. The first step in pricing is the determination of the unit costs (or other values) to be applied. The costs of purchased merchandise, materials, and supplies can be derived from stores accounts and other records of original charges. (See discussion of methods in next chapter.) Adjustments for discounts, transportation, and handling and storing costs can be made either in terms of unit values or by aggregates of particular sections of the inventory. Finding unit costs of work in process or manufactured product is in general a much more difficult task, with respect to both defining the unit and measuring unit values. If a cost system by jobs or lots is in use the cost of the particular job in process or completed can be drawn from the record of labor, materials, and burden as shown by the appropriate cost sheet. Where there is in effect no cost system that accumulates charges by particular items of inventory it is necessary for the cost

department to furnish estimates of assignable costs for all stages of completion, and all classes of goods, represented. Goods in process or completed must be fully described on the inventory sheets, and it is advisable to show the component elements of materials, labor, and burden.

After unit costs have been ascertained and listed the forms are turned over to machine operators for extending and tabulating. Under some procedures the data appearing on the original cards are transferred to inventory sheets before computation of amounts. The work of extending should be carefully checked and in some cases complete verification is desirable.

The final stage consists of the recapitulation of the inventory by departments or main divisions on summary sheets and the recognition of any special adjustments required under the valuation policies adopted by the management. The summary sheets represent in effect the underlying report of the results of the inventory, and one copy should be filed as a permanent record.

**Turnover.** In both trading and manufacturing operations the use of turnover data is a familiar feature of the system of analysis and control. By "turnover" in general is meant the number of times the amount of average or normal stock of goods in a given situation is replaced during a particular period. It is usually computed in value terms, although where prices are moving sharply value turnover is likely to be misleading. Computation of turnover in physical terms is possible only for each homogeneous class of goods, taken separately. Turnover ratios are particularly useful in determining inventory requirements, in focusing attention on slow-moving and excessive stocks, and in comparing periodic performances. As a rule a series of short-term turnover ratios is more significant than yearly figures.

Merchandise turnover is commonly calculated by dividing merchandise cost of sales by the average inventory. Ideally the inventory figure used in the computation should be an average of daily balances, rather than the simple average of opening and closing inventories, as otherwise sharp seasonal or other fluctuations in stock will not be taken into account properly. In some retail lines, especially where the retail method of taking inventory is employed, turnover is referred to as the "stock-sales ratio" and is ascertained by dividing sales by average stock priced at retail. The calculation of turnover in terms of physical units rather than price is possible where a single class of homogeneous goods is involved, and this computation is often employed for particular lines in department stores.

Turnover rates vary between concerns and between classes of goods in the same industry. In a furniture store or department, for example, one

expects to find a lower turnover than in a grocery store or department. There may also be a seasonal variation in the turnover of the particular department or type of merchandise. In setting standards such considerations must be taken into account. It must also be remembered that a variation from standard, although affording a basis for investigation, does not demonstrate either a satisfactory or an unsatisfactory operating situation. Failure to reach the standard set in the particular department or business may be due to excessive buying or slackening sales effort, conditions subject to improvement, or it may be the result of some special and temporary factor such as purchase of a large supply at bargain prices or reduction in selling time owing to occurrence of several holidays in the particular period. Similarly, if performance in a particular period exceeds the established standard the cause may be found in better buying and handling or improved sales management, conditions deserving commendation and support, or in such circumstances as unusually low stock or temporary (and perhaps unsound) expansion of volume.

The computation of significant turnover ratios in manufacturing is not a simple matter, particularly in view of the fact that inventories of work in process and finished product include varying elements of labor and burden costs. To find the turnover of materials throughout the inventory it is necessary to isolate the factor of materials in cost of sales and in the average inventory and divide the former figure by the latter. Material turnover from the standpoint of stores accounting, on the other hand, may be readily computed by dividing the amount requisitioned or put in process for the period by the average balance of stores. The relation of total factory cost of sales to the average of the entire inventory is of some interest but does not represent a clear-cut turnover of materials, labor, or burden cost.

**Inventory Verification.** Taking and pricing the inventory is a complex task, fraught with the possibility of errors and questionable procedures. Mistakes may be made in the count itself, and in calling and writing. Omissions and duplications are not uncommon, and occasionally deliberate shortening or padding is encountered. Clerical blunders and errors in judgment in classifying and tabulating, and in ascertaining and applying unit values, are not easily avoided throughout a large inventory.

Assuming complete integrity of the inventory process per se there remains the problem of reconciliation of inventory and book figures. Discrepancies may be due to unrecorded invoices, errors in transferring invoice data to stock cards, mistakes in compiling and pricing requisitions and shipping orders, or to shrinkage, breakage, theft, etc. On the other hand, the difference between the periodic totals and the book balances

of a continuous inventory system may be largely the result of either questionable or legitimate variations in policies of valuation.

In view of these conditions the public accountant charged with verifying and reconciling the inventory faces a formidable task, and it is small wonder that his efforts are usually confined to a study of procedure followed together with a testing of the accuracy of the processes of physical measurement and pricing. The usual program of "auditing" the inventory emphasizes the following:

1. Study of all special or irregular conditions, including goods in transit or consigned, merchandise pledged, C.O.D. shipments, broken lots, goods delivered under conditional sales contracts, damaged and obsolete merchandise, etc.

2. Careful checking of purchases and withdrawals occurring shortly before or after date of inventory.

3. Examination and verification of price lists; study of discount practices, allowances, returns; consideration of transportation and storing costs.

4. Testing of stores records and requisitions; study of methods of accumulating and applying labor and overhead costs; and reasonable testing of accuracy of cost records.

5. Examination and testing of original inventory cards and sheets and proving of final tabulations and summaries, particular attention being given to large items, footings, and unusual classifications.

6. Examination of last preceding inventory data and comparison with current figures; observation of relations of purchases, cost of sales, inventory, and sales data, by departments and for enterprise as a whole; consideration of general valuation bases and procedures.

7. Obtaining full explanations and formal certificates from employees responsible for work of taking and pricing, and for regular work of stores-keeping and costing.

A program of inventory verification for the traveling auditor, employed by the large company to make periodic visits to particular plants and divisions, follows similar lines.

The outstanding importance of the inventory figures in statements of income and financial statements has long been recognized, and for some years there has been increasing discussion of the question of the extent to which the public accountant should assume responsibility for such figures. With the exposure of the McKesson-Robbins fraud interest in the problem became acute. In general the leaders in the profession have now adopted the view that the accountant who certifies to the statements must take whatever steps are necessary to assure himself of the integrity

of the inventory, with respect to quantity, character, and price. This need not mean a repetition of the entire inventory process, it has been pointed out, provided the accountant is given the opportunity to cooperate in planning the inventory procedure and is permitted to place his own assistants in key positions on the inventory staff. For most concerns the expense of retaking the inventory, in the manner which would be necessary if the taker were to assume full responsibility, would be prohibitive.

### QUESTIONS

1. What is comprehended under the term "inventory"? List and illustrate the principal classes. Contrast inventories with receivables on the one hand and plant assets on the other.

2. Outline standard purchasing and receiving procedure.

3. What are the principal components of the cost of purchases? How should discounts be dealt with in determining the cost of merchandise or materials?

4. "The net-price procedure of recording purchases may be sound in theory but it is nevertheless impracticable." Discuss.

5. "Inventories in general should be interpreted as representing a pool of cost factors." Explain and support.

6. Outline a standard system of storing and issuing materials.

7. List the principal conditions that may give rise to discrepancies in stores accounts. How often should stores accounts be balanced? How should returns to vendors be handled? What is meant by "maximum quantity"? "Standard ordering point"?

8. Of what does the cost of work in process consist? What are the principal sources of entries on the cost sheets? Give illustrative entries to show how estimated burden costs are charged to work in process, and how the account "overhead applied" is closed.

9. With illustrative entries explain how accumulated costs are closed when production is to order and delivery follows immediately after completion. When production is for stock.

10. Outline the accounting for finished goods, with special attention to the determination of the charges to the stores accounts under the principal types of cost systems. What are "shipping orders"?

11. Explain the nature and uses of the continuous book inventory.

12. Why is the complete periodic inventory generally necessary? How often should a complete physical and value inventory be taken?

13. Illustrate the estimating of goods on hand and cost of sales by applying a recognized percentage of margin to purchase and sales data.

14. Indicate the importance of proper preparation for the periodic inventory, and state the main features of the process of preparation. Who should direct the work of taking and pricing inventory? Why is the time element of special importance?

15. Discuss the problem of determining what shall be included in the inventory. What is your recommendation with respect to goods in transit? Purchase orders? Pledged merchandise? Goods delivered under conditional sales contracts?

16. Draw up an illustrative inventory sheet for some concern with which you are familiar. What are the principal advantages attaching to the use of tags or cards in

taking inventory? Indicate the need for proper control of forms throughout the inventory process.

17. By what processes is the physical inventory determined? Indicate the need for adaptation to the particular circumstances. Outline the duties of "counters," "writers," "checkers."

18. What is the first step in pricing procedure? How should discounts, transportation charges, and handling and storing costs be dealt with? How are costs of work in process and of finished stock ascertained for inventory purposes? What are the principal clerical operations involved in pricing?

19. What is meant by merchandise turnover? Illustrate. How would you compute physical turnover? Indicate the significance of turnover data in controlling operations. Discuss the calculation of turnover in manufacturing.

20. Outline a program of inventory verification for the public accountant.

## VI

### INVENTORY VALUATION

**Primary Bases of Valuation.** The valuation of the inventory is a major factor in the measurement of periodic net income and the determination of financial condition, and the adoption of a sound valuation policy is accordingly a matter of first importance. There are three principal bases or starting points in this connection which deserve examination: (1) actual or historical cost; (2) replacement cost; (3) adjusted selling price. In addition there is the popular working rule, "cost or market, whichever is lower," a rule which represents a combination of other bases but which has come to be regarded as a distinct approach. The "last-in, first-out" policy, a particular form of the cost basis, has likewise taken on the importance of an independent method of valuation in recent years.

**Cost Basis.** In the case of purchased merchandise, materials, and supplies, actual cost means the net invoice price plus transportation charges and other costs incurred in acquiring the goods. Handling and storing costs should also be assigned in appropriate amount, under an ideal treatment, but in practice many concerns fail to take these elements into consideration in computing inventory values. In the case of work in process and finished product cost of goods on hand at any time should include all labor and other service costs of operation properly allocable to such goods, in addition to the cost of materials and supplies consumed in the process of fabrication. As a rule selling costs are not viewed as attaching to the inventory, even in cases where there is some reason for deferring a part of such costs.

The cost approach to inventory valuation is on the whole the most reasonable and satisfactory. Adoption of this basis is equivalent to an interpretation of the inventory as a pool of costs applicable to future revenues, and hence to be excluded from current charges to sales. Valuation at cost is the complement of the rule that earnings must be measured strictly in terms of the volume of sales; the use of any other basis than cost, in other words, results in the recognition of unrealized gains or losses. This point has especial force throughout the trading field, where selling is the dominant activity and natural focus of income determination.

A major objection to the cost basis is found in the emphasis often laid on the balance sheet as a statement of immediate financial condition. If replacement costs have either advanced or fallen between date of acquisition and date of inventory it may be urged that the cost of goods on hand does not give a proper figure for the statement of current position. In circumstances in which the inventory may reasonably be viewed in the balance sheet as an aggregate of costs incurred, legitimately deferred, this objection has little force. Where the inventory is more properly conceived as a fund of current debt-paying power, on the other hand, it must be admitted that replacement cost is often a more satisfactory measure of value than actual cost. Evidently the nature of the inventory, and the use to which the balance sheet is to be put, should be considered in reaching a decision as to valuation policy. Employment of more than one basis of pricing in a single enterprise need not be deemed improper. In pricing work in process or materials dedicated to use in production, for example, the strict cost basis might be considered appropriate, and in the case of standard merchandise available for sale it might be deemed necessary to adjust cost in accordance with current market conditions.

Cost valuations may also be objected to on the ground that in so far as selling prices tend to reflect replacement costs the management is not properly guided by reports showing only the actual cost of goods on hand. This point, not very important in the case of fast-moving stock, has some merit where the period of production is sufficiently long, and the market sufficiently sensitive, to make possible adjustment of production plans based on observation of changing costs.

With respect to the first line of objection to cost valuations it should be pointed out that the cost basis of pricing can be retained for the purpose of preparing the income report while at the same time estimated replacement cost is shown parenthetically—or with any degree of prominence desired—in the statement of financial condition. The second objection is likewise met in some measure by noting that estimated replacement costs may be computed and reported to the management as often as desired without revision of the formal accounts.

As suggested above, strict adherence to the cost basis of valuation implies acceptance of the policy of completely excluding from the computation of periodic net the effect of estimated unrealized loss or gain attaching to goods on hand. Is this policy sound? No attempt will be made to answer the question in full at this point, as the problem is much broader than that of inventory pricing. Undoubtedly a strong case can be made in many enterprises for the use of the volume of sales as the measure of revenues, and periodic absorption of costs in terms of such



measure. There is something to be said, on the other hand, for modification of the general scheme to permit recognition, at least in the form of supplementary data, of the probable influence of a change in cost prices to the extent of their application to commitments already made on another level.

In some circumstances cost is clearly an unsatisfactory basis of pricing inventories. For example, in the case of obsolete or shopworn merchandise, or goods which for any reason have suffered definite impairment in usefulness or salability, a portion of the cost incurred must be currently absorbed. (See discussion of special inventory situations later in this chapter.)

**Estimating Cost—Weighted-Average Method.** Often it is not feasible to mark merchandise or materials piece by piece with invoice prices or with symbols permitting identification in terms of particular shipments, and this condition, when coupled with movement of prices during the period in which the inventory is accumulated, makes necessary the adoption of some method of tracing the flow of goods and of estimating the invoice costs of goods on hand.

The weighted-average method represents one device which may be employed in this connection. To illustrate, assume that the M Co. during its first month of operation buys a particular class of materials in five lots as follows:

<i>Date</i>	<i>Quantity</i>	<i>Price</i>	<i>Amount</i>
Jan. 5	1,000	\$3.0000	\$ 3,000.00
12	4,000	2.9000	11,600.00
20	2,000	2.9000	5,800.00
25	1,500	3.0000	4,500.00
30	3,000	3.1425	9,427.50
	<u>11,500</u>		<u>\$34,327.50</u>

The physical inventory at the end of January is 5,000 units. Under these conditions the average cost per unit for the period is \$2.985 (\$34,327.50 divided by 11,500), and the cost of goods on hand based on such average is \$14,925 (5,000 times \$2.985). For the ensuing period this inventory amount represents the first lot and must be taken into account in calculating the next average price.

This method is based on the assumption that as goods are sold, used, or otherwise disposed of each batch taken from stock is composed of proportionate parts of the various lots then comprised in stock, including the opening inventory as the first lot, and the degree of accuracy achieved

in estimating the literal cost of goods on hand depends upon the degree to which this assumption conforms to the conditions actually obtaining. As a matter of fact it would be impossible for the movement of goods to match the assumed pattern precisely as this would mean that no particular lot or shipment could ever be completely closed out, and merchandise is never infinitely divisible. It must be remembered, however, that what is desired is a reasonable method of approximating cost, and the use of the procedure outlined is not seriously objectionable, particularly where the turnover rate is high.

The use of average cost in pricing issues from stores is practicable and is not uncommon. After each increment to stock a new average is computed (excepting the rare case where the unit price of the incoming lot happens to be the same as the current weighted average), and this figure is applied to all requisitions filled prior to date of receipt of the next lot. Where this method of "pricing out" is employed space must be provided on the stores sheet in which to record the various average costs. After a number of lots have been received it is necessary to carry the computation of unit costs to several decimal places if precise application of the method is desired. This fact lends some support to the views of those who consider the procedure unduly complex. It should be recognized that the result of a continuous pricing of issues will not be the same as that obtained by computing the inventory and the amount drawn at the end of the year, as illustrated above.

**"First-In, First-Out" Method.** Another method of estimating cost is based upon the assumption that goods sold or withdrawn are always taken from the oldest in stock or, in other words, that the goods on hand consist of the most recently acquired lots. Under this method the invoice cost of the periodic inventory is computed, class by class, by accumulating the recent entries appearing on the appropriate stores sheets, both quantity and value, in amount sufficient to absorb the inventory quantities. The computation may be illustrated by referring to the figures given in the preceding section for the M Co. With a physical inventory of 5,000 units the cost by the first-in, first-out method is found as follows:

<i>Date</i>	<i>Quantity</i>	<i>Price</i>	<i>Amount</i>
Jan. 30	3,000	\$3.1425	\$ 9,427.50
25	1,500	3.0000	4,500.00
20	500	2.9000	1,450.00
	<u>5,000</u>		<u>\$15,377.50</u>

The amount of the inventory so computed, \$15,377.50, evidently consists of the cost of the last two lots received plus one-fourth the cost of the third most recent increment.

Where no detailed system of stores accounts is in effect the inventory may nevertheless be readily priced by the first-in, first-out device through an analysis of recent invoices in terms of the classification of inventory set up on the inventory cards.

It should be emphasized that under this plan of estimating cost only the purchases of the last few days or weeks are covered in obtaining the inventory figure in the case of fast-moving stock. Where the rate of turnover is high, in other words, the first-in, first-out procedure approximates the use of the latest cost, or cost of replacement.

The first-in, first-out method of estimating invoice cost can in general be strongly recommended. There are no serious objections to the method, technical or otherwise, and there are a number of important advantages. These may be summarized as follows:

1. The inventory is drawn from the actual records in a systematic manner, and the result is a cost value, with no recognition of unrealized profit or loss.
2. The resulting inventory is usually in reasonable harmony with current market valuations.
3. The assumed movement of goods through the concern represents a condition to which a management should in general adhere as closely as possible.

The last point is especially important in connection with goods subject to deterioration, such as rubber tires. It is good policy in stores management to sell or use goods of this character substantially in the order received, and thus avoid the losses which might otherwise accrue.

**Issuing Stores under First-In, First-Out Procedure.** In pricing issues by the first-in, first-out method each requisition is assumed to be filled from the oldest goods of the class in stock. Assume, for example, that the receipts section of a particular stores account for January shows the following data:

<i>Date</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Amount</i>
Jan. 1 (Bal.)	1,000	\$1.00	\$1,000.00
10	500	1.10	550.00
25	900	1.15	1,035.00

Assume, further, that six requisitions on this class of materials are filled during January, the respective quantities called for being 100, 400, 50, 600, 200, and 200—a total of 1,550 units. The requisitions would be priced as shown by the following:

<i>Issue Date</i>	<i>Quantity</i>	<i>Issue Price</i>	<i>Amount</i>
Jan. 4	100	\$1.00	\$100.00
8	400	1.00	400.00
13	50	1.00	50.00
15	{450	{1.00	{450.00
	{150	{1.10	{165.00
20	200	1.10	220.00
27	{150	{1.10	{165.00
	{50	{1.15	{57.50
	<hr/> 1,550		<hr/> \$1,607.50

The balance at this point is evidently 850 units priced at \$1.15 each, or a total of \$977.50.

**"Last-In, First-Out" Method.** A third method of estimating cost, the "last-in, first-out" procedure, assumes that the cost of goods utilized or sold is made up of the charges most recently incurred. The method assumes, in other words, that goods are acquired or fabricated for stock until the amount of the inventory has been accumulated and that thereafter all costs incurred pass directly into operating charges. The figures given earlier for the M Co. in the first period of operation may again be used for illustration. With an inventory of 5,000 units at the end of January out of total acquisitions of 11,500 units, the amount drawn or disposed of is 6,500 units. This amount just absorbs the last three lots acquired. The cost of goods used in January, then, is determined as follows:

<i>Date</i>	<i>Quantity</i>	<i>Price</i>	<i>Amount</i>
Jan. 30	3,000	\$3.1425	\$ 9,427.50
25	1,500	3.0000	4,500.00
20	2,000	2.9000	5,800.00
	<hr/> 6,500		<hr/> \$19,727.50

The cost of goods remaining in stock consists of the remaining lots, in this case the first two acquired, as shown by the following:

<i>Date</i>	<i>Quantity</i>	<i>Price</i>	<i>Amount</i>
Jan. 12	4,000	\$2.9000	\$11,600.00
5	1,000	3.0000	3,000.00
	<hr/> 5,000		<hr/> \$14,600.00

In the following period the opening inventory would represent the oldest stock and hence be the first component of the next inventory taken. Assuming no change in the physical amount of stock on hand at succeeding inventory dates it is noticeable that the effect of the method is to peg the inventory permanently at precisely the amount of the cost of the original accumulation.

An interesting technical feature of last-in, first-out procedure lies in the fact that a change in the period of reckoning may change the results obtained—a condition that does not attach to the first-in, first-out method. If inventory is taken and cost of goods utilized or sold is computed at the end of the period, for example, the cost of goods withdrawn is found—as shown above—by totaling quantities and corresponding charges incurred throughout the period, beginning with the most recent increments, until all quantities and charges have been absorbed except for the amounts applicable to the new inventory. If, on the other hand, withdrawals are computed from day to day the total amount absorbed for the period is found by combining a series of computations made before the data as to last-in increments for the period viewed as a whole are available.

For an example the figures as to receipts and issues of the case given in the preceding section may be used. If the total issues for the month of 1,550 units are priced on the basis of last-in, first-out with the data for the entire period available, the amount drawn is computed as follows:

<i>Issue Date</i>	<i>Quantity</i>	<i>Issue Price</i>	<i>Amount</i>
Jan. 4	100	\$1.15	\$ 115.00
8	400	1.15	460.00
13	50	1.15	57.50
15	{ 350	{ 1.15	{ 402.50
	{ 250	{ 1.10	{ 275.00
20	200	1.10	220.00
27	{ 50	{ 1.10	{ 55.00
	{ 150	{ 1.00	{ 150.00
	<u>1,550</u>		<u>\$1,735.00</u>

Determining issues in this manner leaves an inventory of 850 units assumed to be from the opening inventory, priced at \$1.00 each. If, however, the issues were priced when issued, quite a different division of costs is obtained. On January 4 and 8, for example, the most recently acquired stock is the opening inventory, and the issues of these dates would be priced in terms of the unit cost attaching to the opening inventory. Similarly each batch issued would be priced in terms of the unit cost of the latest acquisitions available as of the date of issue. The results for the month would be as follows:

<i>Issue Date</i>	<i>Quantity</i>	<i>Issue Price</i>	<i>Amount</i>
Jan. 4	100	\$1.00	\$ 100.00
8	400	1.00	400.00
13	50	1.10	55.00
15	{ 450	{ 1.10	{ 495.00
	{ 150	{ 1.00	{ 150.00
20	200	1.00	200.00
27	200	1.15	230.00
	<u>1,550</u>		<u>\$1,630.00</u>

The cost of the inventory of 850 units on hand on January 31 is now \$955. This is made up as follows:

150 units from opening inventory at 1.00 . . . . .	\$150.00
700 units from receipts of January 25 at 1.15 . . . . .	805.00
	<u>\$955.00</u>

This inventory, a mixture, is not far removed from that computed under the first-in, first-out issuing procedure, although the last-in, first-out conception has been strictly adhered to in pricing issues from day to day.

#### **Effect of Last-In, First-Out Method on Periodic Cost and Income.**

After years of persistent agitation in certain quarters the last-in, first-out procedure has acquired some standing in practice, and has finally been recognized by the Treasury Department in connection with income-tax administration. Nevertheless there are a number of serious objections to the method which should not be overlooked. These may well be brought out in terms of an examination of the principal arguments presented by the proponents of last-in, first-out.

The adoption of last-in, first-out is sometimes defended by reference to the view that in determining true profit the revenues of the period should be charged with costs measured by the level of prices obtaining toward the end of the period—"current prices." Is there any substantial merit in this line of argument? Answer in the negative seems to be called for. In the first place not much of a case can be made for measuring profit in the manner indicated. The revenues of the period are composed of the prices of product in effect from day to day, and the costs to be charged to such revenues are the actual costs incurred throughout the period and earlier which are reasonably assignable to the various batches of product sold. It is not always easy to identify and price the applicable cost elements, but there seems to be no good reason for assuming that the problem can be solved by considering only the conditions obtaining toward the close of the period. Current replacement costs may have a special bearing on future selling prices, but it does not follow that the costs of the past can be ignored in measuring the realized profit or loss of the past. In the second place the use of last-in, first-out does not result in charging revenues with costs based on year-end prices. Assume, for example, an opening inventory of 1,000,000 barrels of crude oil, acquisitions during the period of 10,000,000 barrels, and sales of 10,000,000 barrels. With these conditions the materials cost of sales by the last-in, first-out method, applied to the data of the period as a whole, is identical with the total cost of acquisitions received at varying prices, and this figure will not even approximate the cost of 10,000,000 barrels.

at the latest quotation if there has been a sharp movement in prices toward the end of the year. There is the further point, as explained in the preceding section, that where there is a continuous pricing of goods issued under last-in, first-out procedure the total cost of issues for the period may not coincide with the cost of the most recent acquisitions in corresponding quantity. In the third place it may be urged that for managerial purposes it is more useful to apply the relatively recent costs to the goods on hand than to goods sold. Completed sales and the related costs are "water under the bridge," closed transactions. Utilization of the inventory, on the other hand, lies in the future, and in planning such utilization the current level of costs is especially significant.

The use of last-in, first-out as compared with first-in, first-out procedure undoubtedly tends to reduce the fluctuations from period to period in reported net income, and the advocates of the former method make much of this fact. Assume, for example, that in the first period of operation the M Co. buys 10,000,000 barrels of oil in ten equal lots at prices ranging from 91 cents per barrel for the first lot, 92 cents for the second lot, and so on to \$1.00 for the last lot, and that the inventory at the end of the period is 1,000,000 barrels. With these conditions the application of first-in, first-out yields a figure for the cost of goods sold or utilized (assuming no loss through shrinkage or otherwise) amounting to the cost of the first nine lots, or \$8,550,000, while the use of last-in, first-out method gives a figure of \$8,640,000, the cost of the last nine lots. And the cost of the inventory computed by the first method is \$1,000,000, and by the second method, \$910,000, a difference of \$90,000. This means that the net income reported under first-in, first-out will be \$90,000 more (or the net loss \$90,000 less) than will be reported under last-in, first-out. Similarly, if the purchases of the M Co. during the first period were acquired in ten lots at declining prices ranging from \$1.00 for the first lot, 99 cents for the second, and so on to 91 cents for the last, with other conditions as before, the use of first-in, first-out would yield a cost of goods sold or utilized of \$8,640,000 while the other method would give a figure of \$8,550,000. The inventory figures, likewise, would be reversed. With respect to net income, in turn, the effect of last-in, first-out under these circumstances as compared with the alternative procedure would be an addition of \$90,000.

As suggested by the example, the extent to which the peaks of good years are cut off and the valleys of bad years are filled in by the use of the last-in, first-out method depends in any given instance on the relative importance of the inventory figure in the computation and the severity of the advance or decline in prices, but there is no denying the fact that the method exerts a stabilizing influence on reported earnings. The

question then arises, is such stabilizing desirable? In answering this query a clear distinction must be drawn between the stabilization of the actual volume of business and of the actual income, and a policy of statistical smoothing or averaging. No doubt there is much to be said for any promising program that aims to minimize business fluctuations. It should be equally evident that any plan designed to alter the appearance of business affairs without effecting any change in the objective circumstances is open to serious question. The extractive enterprises, it is generally agreed, are subject to sharp fluctuations from year to year. If this is true it is certainly not desirable to introduce in this field accounting methods that bring about a purely specious, artificial stability. In other words, if there are good years and bad years this condition should be disclosed, not obscured, by the accounts and reports.

It is true that yearly statements at the best are subject to serious limitations as a basis for judging the progress of the continuing enterprise. This fact, however, does not justify arbitrary tinkering with such statements. The proper remedy lies in the extension of the use of average and cumulative statements to supplement the annual report. Entire elimination of the short-term reckoning is preferable to artificial modification thereof. The statement for the particular year, if issued at all, should reflect the conditions of that year, good or bad.

**First-In, First-Out and Profit Realization.** The proponents of last-in, first-out sometimes argue that the use of first-in, first-out may result in the recognition of unrealized profit in the form of "mere inventory markup." This argument is almost entirely lacking in force. In a period of rising prices, it is true, the inventory absorbs an increasing number of dollars, an increasing amount of capital. It is also true that profits may be "tied up" in the inventory, even where there is no increase in the physical quantity of goods on hand. But this is a far cry from recognition of unrealized profits. Assume, for example, that a tire dealer at the beginning of a particular year has on hand 2,000 tires which cost \$15.00 each, a total inventory of \$30,000. During the year, to continue the illustration, purchases consist of ten lots of 2,000 tires each, all of one make and size. The first lot cost \$15.50 per tire, and in each succeeding purchase the cost increased by 50 cents per tire, the unit price of the last batch being \$20.00. The dealer marks and racks the tires in such a manner that the oldest stock is always utilized first. Total sales during the year amount to 20,000 tires, and the inventory again consists of 2,000 units. Following first-in, first-out procedure, which conforms precisely to the flow of goods in this situation, the cost of goods sold for the year is \$345,000 and the cost of goods on hand at the end of the period is \$40,000. The investment in inventory is now \$40,000 as com-



pared with \$30,000 at the beginning of the year although the physical quantity is unchanged. But there is no lack of realization here. The literal fact is that specific goods which cost \$345,000 have been sold and that goods which cost \$40,000 are on hand awaiting sale. There is no more question about the investment of \$40,000 now than there was with regard to the investment of \$30,000 at the beginning of the year. If the increase has been financed from profits it is of course true that this section of profits is not immediately available for cash dividends, but the same can be said of any absorption of profits in current assets other than cash or similar resources, or in fixed assets. Moreover, the increase in the inventory of \$10,000 with no increase in quantity is just as real and valid an asset as would have been present if, with no change in tire prices, the dealer had increased his physical stock at a cost of \$10,000. No one would question the validity of the cost of a building erected at an expenditure of \$40,000 because a preceding building, of the same character, cost only \$30,000, and there is no excuse for questioning the validity of the inventory of \$40,000 because an earlier inventory of the same character, but consisting of other units, cost only \$30,000.

See Chapter XX for further consideration of the problem of "realized" and "unrealized" income.

**Actual Physical Movement and Assumed Order of Use.** In the earlier discussion of first-in, first-out it was indicated that the movement of goods assumed by this procedure represents a condition generally to be desired in business operation. For most situations, that is, a flow of items in procession fashion reflects efficient utilization of resources. In many cases, of course, the actual movement does not conform closely to the assumed flow, and often there would be little point to attempting to bring about a more complete agreement of objective circumstances and first-in, first-out accounting procedure. Nevertheless it may be urged that wherever convenient it is well to secure a physical use in roughly a first-in, first-out order, and that in the handling of perishables such method of use is imperative.

Last-in, first-out in the physical sense, on the other hand, would seldom if ever be desirable as a settled policy, and seldom in practice is such an order of use actually followed for any considerable period. Indeed, if this method of handling goods were generally employed the loss due to deterioration would be enormous. Here seems to be an additional objection to the use of last-in, first-out as an accounting procedure.

Other things being at all equal it is presumably better to adopt conceptions and methods in accounting that are in harmony with external conditions, with objective administration of resources. At least the burden of proof should be very definitely on those who propose methods

of reckoning costs which run directly counter to good physical practice. Accounts show dollars rather than goods, but the recorded dollars should faithfully reflect the existing array of productive factors.

**Last-In, First-Out and Asset Valuation.** Enthusiasts for last-in, first-out often urge that the inventory is essentially a fixed asset, at least to the amount of a normal stock, and should be priced accordingly. The propriety of viewing typical inventories as fixed property is considered later, in connection with the discussion of the base-stock policy. Assuming for the time being that the inventory is an asset similar to plant, and ignoring entirely the question of accrued depreciation, it is worth while to see if the last-in, first-out procedure applied to inventory conforms to standard practice with respect to the handling of acquisitions and retirements of buildings and equipment.

Under last-in, first-out procedure the goods on hand are always assumed to be composed of the oldest stock. This means that the original cost of building up the minimum quantity of inventory carried is permanently retained in the accounts. For example, if the M Co. in its first period of operation acquires an inventory of 1,000,000 barrels of oil at a cost of 50 cents a barrel and if in subsequent periods the quantity never falls below this amount there will be included in each succeeding inventory 1,000,000 units priced at the original cost of 50 cents each, without regard to the actual cost of the materials on hand. Any excess of inventory over 1,000,000 barrels will be priced in terms of the oldest possible increment in view of the record of purchases and withdrawals.

What are the results if this procedure is applied to plant? Assume, for example, that at the beginning of operations the M Co. acquires 100 similar trucks at a cost of \$1,500 each, and that three years later these trucks are replaced with 100 new units, of the same type as the old, at a cost of \$1,200 each. Following the last-in, first-out method the "inventory" of trucks at the end of three years remains pegged at \$150,000, notwithstanding the obvious fact that the existing fleet cost only \$120,000. Moreover, this condition will remain unchanged no matter how many times the "stock" of trucks is renewed, and no matter how far the cost of succeeding fleets varies from that of the first installation.

Such a treatment of plant account is the very antithesis of good practice and would presumably not be tolerated by any public accountant. The requirement that the records shall show the cost of the existing layout of facilities, rather than the cost of an earlier generation of assets, is almost axiomatic. Even under the retirement policy of dealing with plant cost, which has a strong foothold in the public-utility field, the preferred treatment is to close out the cost of old units as retired and capitalize the cost of new units placed in service. For the larger elements

of plant it is generally possible to identify specific units eliminated in terms of specific costs of acquisition. Where such identification is not feasible the assumption that assets pass through the enterprise on a first-in, first-out basis is usually relied upon in estimating the cost of units retired. There is no place in the procedure at any point for last-in, first-out.

Upon examination, then, the view that last-in, first-out procedure may appropriately be applied to inventory costs because of the relation of inventories to fixed assets is found to be without merit. There is nothing in the standard practices associated with plant accounting to encourage use of last-in, first-out.

Implied in the foregoing is a serious objection to last-in, first-out from the balance-sheet standpoint. Over a period of years the cost of the inventory derived by the use of this method may be greatly in excess of, or far below, the prevailing cost of the goods. Suppose, for example, a concern acquired an original inventory of raw sugar at a cost of 20 cents a pound and that some years later the cost of such material has fallen to 4 cents. Is it good reporting to continue to show an inventory, up to the amount of the original quantity, priced at 20 cents? Similarly if an initial inventory of copper is acquired at 5 cents a pound is it proper to continue to report the inventory at this price during years in which all copper acquired was purchased at not less than 10 cents per pound? Evidently a balance sheet in which important assets are priced by the last-in, first-out procedure cannot be relied upon to furnish a showing of current position which is even roughly reliable.

**Last-In, First-Out and Taxable Income.** Under an income-tax program which emphasizes the annual reckoning it is not surprising that last-in, first-out has gained many adherents, particularly in fields in which the annual fluctuations in the volume of sales and amount of net income are often very sharp. For example, if an oil refining company makes a profit of \$5,000,000 in its first year of operation and loses \$2,000,000 the next year the income tax is not based on the profit of the two-year period, \$3,000,000. Instead the company is subject to a tax based on \$5,000,000 the first year and is not entitled to any refund on account of the bad showing of the second period (although the net operating loss may be forwarded—under the rules now in effect—in determining taxable income for the succeeding year). As explained earlier, the use of the last-in, first-out procedure as compared to first-in, first-out tends to reduce—in the reports—the extent of the periodic swings. Assuming that the figures just given are based on first-in, first-out procedure it would be quite possible that a shift to the other method of computing cost of sales would cut off a considerable fraction of the profit shown in the

first year and cancel a substantial portion of the loss suffered in the second year, and if the revised treatment were accepted for tax purposes a reduction in the total taxable income of the two years would result.

It should be understood that restricting reported profits in years of good business and advancing prices and improving the showing in years of shrinking volume and falling prices through the aid of the last-in, first-out procedure will not affect the total amount of corporate income tax substantially over a period of years where there are no net losses in particular periods (ignoring the question of differential taxes). Moreover, to the extent that net losses may be forwarded and treated as allowable deductions in succeeding years the importance of the procedure as a means of modifying tax liability is minimized.

**Replacement-Cost Basis.** By replacement cost is meant the amount it would cost at the time of the inventory to buy the goods and place them in their present condition. In the case of materials, supplies, and merchandise purchased the replacement cost is the amount of the current net invoice price plus transportation and storing charges, also calculated in terms of immediate conditions. With respect to invoice price replacement cost or "market" for standard materials or merchandise is conventionally defined as the quoted price on the date of the inventory from the regular source of supply, in the quantities regularly purchased. In the case of manufacturing inventories, work in process and finished goods, there must be added to the replacement cost of materials the amount of all other assignable costs adjusted to the current level of manufacturing cost.

The principal lines of argument which may be used to support the valuation of inventories on the basis of replacement cost were indicated earlier in the discussion of valuations at cost. The main objection to this basis, likewise previously suggested, lies in the fact that its use will result—where prices have advanced—in the recognition of unrealized profit, and—where prices have fallen—in the booking of unrealized losses. Replacement cost as an independent valuation base is not generally approved by the income-tax authorities, and is viewed as nonconservative by many accountants, bankers, and business managers.

The significance of replacement cost to business managements and other interested parties varies with the class of goods involved and the market situation. In the retail market the movement of the selling prices of staples such as sugar, flour, and coal usually follows the course of replacement costs quite closely, but in the case of style merchandise and highly specialized goods in general the immediate influence of a change in replacement cost is likely to be slight. In the wholesale market selling prices all along the line tend to reflect the trend of buying prices, and

the case for the use of replacement cost in valuation is accordingly somewhat stronger in this area. For most trading concerns, it is fair to say, there is little to be gained in the way of useful reporting by a shift from recorded cost to current buying price, particularly when cost is estimated by the first-in, first-out method.

Approximate replacement costs as of the inventory date can usually be determined without great difficulty in the case of standard materials and supplies, and no doubt such costs should be taken into consideration by the management in utilizing the available stores. Here too, however, an inventory value based on the cost of the most recent purchases is an acceptable substitute for replacement cost except in situations where turnover is slow and price movements very marked. Valuation of work in process on other than a cost basis is fraught with special difficulties and has little justification. Work in process represents operating costs chargeable to future sales, not disposable merchandise. Goods in process of manufacture often have no clear-cut buying price as they stand, and as a rule it is only the expectation of completion as planned that gives them an inventoriable value in excess of their value as scrap. To determine the replacement cost of work in process, moreover, it is necessary to recalculate all cost elements involved—materials, labor, and overhead—on a current basis. This is particularly troublesome in the case of certain overhead costs. The cost of replacement of the plant-depreciation element applicable to the inventory, for example, can be ascertained only by finding the amount of the depreciation charge as it would stand if all necessary equipment and buildings were purchased or erected on the date of inventory.

The finished product of the manufacturer ordinarily represents salable merchandise, and often the market for such goods is fairly sensitive to the movement of production costs. The valuation of finished stock on a replacement-cost basis, however, should not in general be encouraged. A thoroughgoing repricing of the cost factors included is a difficult matter, as just indicated, and such repricing inevitably results in bringing into the accounts either additions to or deductions from cost values not yet realized by sale.

Adherence to the cost basis in computing cost of sales, as was pointed out earlier, does not preclude the use of estimated replacement costs as supplementary data.

**Actual Cost or Replacement Cost, Whichever Is Lower.** This basis of valuation—usually labeled “cost or market, whichever is lower”—represents a special combination of the two main cost approaches rather than a fundamentally distinct policy. The main consideration which can be adduced in its support is immediate conservatism. Through the invari-

able use of the lower of the alternative cost values in pricing inventory, profits not realized by sale are in general excluded from the income report while unrealized losses—in the form of falling cost values of goods on hand—are taken into account as an offset to what would otherwise be the amount of operating income. “Cost or market” has long been accepted by the Treasury Department as an allowable basis of valuing inventories for income-tax purposes, and is endorsed by many accountants, bankers, and business managements.

The use of this compromise basis of valuation requires the ascertaining of both actual cost and replacement cost or “market” for each item or other subdivision of the inventory as shown by the underlying cards or sheets. Space must accordingly be provided on the forms used in which to record the unit costs and extensions on each basis. The amount of clerical work required in compiling the inventory under a complete application of this procedure is large, to say nothing of the difficult task of determining the necessary data.

Not all accountants agree as to what should be meant by “market” in employing the conservative basis. Where estimated net selling value (total sale value less costs expected to be incurred in effecting sale) is lower than either cost or replacement cost many feel that such realizable value should be used. Likewise when replacement cost cannot be satisfactorily determined, estimated realizable value is sometimes compared with cost in finding the inventory figure by the “cost or market” approach. Differences of opinion also appear in regard to other technical points. For example, agreement is lacking as to the decisive stage at which cost and market shall be compared. Is the final inventory figure to be found by accepting the lower of the grand totals of cost and replacement cost? Or by accumulating the sum of the smaller subtotals for each class of goods in the inventory? Or by literally combining the lower of cost or market for each specific item shown on the inventory sheets? Thoroughgoing use of the method would seem to require the last interpretation.

In the manufacturing field in particular cost or market is often very crudely employed, and the net result of nominal acceptance of the conservative policy may be a lack of any clear-cut basis of valuation. The regulations of the Bureau of Internal Revenue require that if market value is used it must be applied to all of the basic elements of cost—materials, labor, and burden—in the case of both work in process and finished goods, and “market” is defined definitely in terms of replacement cost. In lieu of following the indicated procedure the “market” value of work in process is sometimes found by deducting from the current selling price of the corresponding finished product the estimated amount of all

costs yet to be incurred, and "market" for finished goods is similarly determined by deducting estimated selling and shipping charges from prevailing selling price. Aside from the fact that they rest on a questionable assumption as to the relation between costs and selling prices, such calculations result in values which are wide of the mark in that they may include a measure of unrealized profit. In other situations "market" is determined by the deduction of a roughly estimated reserve from accumulated cost figures. Seldom indeed is a serious effort made to compute the replacement costs at date of inventory of the labor and overhead factors. This general condition is decidedly unfortunate, particularly in view of the fact that few enterprises give sufficient data in their published reports to indicate clearly the procedure followed in the valuation of inventories.

**Objections to Conservative Rule.** Notwithstanding its wide use in one form or another there are serious objections to the "cost or market" approach to inventory valuation—objections with which accountants and businessmen should be familiar and which they should weigh carefully. In the first place this basis of valuation is inconsistent, and inconsistency is the very antithesis of sound accounting. The rule recognizes the significance of market quotations when prices decline but denies that they have any bearing on the interpretation of the financial condition and progress of the business when the movement is in the other direction. Such doctrine is very hard to justify. If current market prices have a place in the process of valuing inventories and measuring income when cost is the greater, it is difficult to see how the meaning of market value is lost when recorded cost is the lower of the two measures. The inconsistency involved, moreover, is more serious than a casual examination of the matter reveals. While all prices do not move uniformly the costs of most of the goods found in the typical inventory move in the same direction, up or down. This means that if replacement cost is substantially below actual cost with respect to one important class of the inventory it is very likely to be below cost for the other elements. The use of what appears to be a combination basis, accordingly, often has the effect of a shifting from actual cost to current market, and vice versa, from period to period. That is, at the close of one period the use of cost or market, whichever is lower, may yield substantially a cost inventory, and at the end of the following period the application of the method may result in an inventory priced on the basis of replacement cost. Such shifting has a serious distorting influence on the periodic income statement.

In the second place, the combination basis of pricing is cumbersome and costly; to the difficulties of determining actual cost are added the

serious problem of finding market values or replacement costs, item by item or group by group throughout the inventory. Particularly in the manufacturing field does the thoroughgoing use of cost or market, whichever is lower, require an elaborate procedure. This is of course not a decisive objection, but it is something for the management to bear in mind in considering valuation policy. As explained earlier, the rule is often applied in practice in a very loose manner.

On the theoretical side a minor objection is found in the fact that the so-called conservative policy, if literally employed, will occasionally result in the recognition of unrealized profit, in terms of particular accounting periods. This will happen wherever goods are held through two or more successive periods and replacement cost, although still below actual cost, has advanced beyond the preceding inventory figure. Assume, for example, that on June 30 the M Co.'s inventory has an actual cost of \$50,000 and a replacement cost at this point of only \$40,000. On a cost or market basis the inventory value is accordingly \$40,000. On July 31 one-half of the merchandise making up the June inventory is still on hand and at this time its replacement cost is \$22,500, as compared with an actual cost of \$25,000 and a preceding inventory value of \$20,000. Applying the conservative policy as stated now results in an inventory of \$22,500, and an unrealized profit of \$2,500—for the month of July—is taken into account. This objection is usually met by the accountant by defining "cost" as either actual cost or last inventory value, whichever is the lower.

Finally, the rule of cost or market is "in no sense *truly* conservative," as Hatfield puts it. There is no consistent scaling down of values; the plan merely provides for acceptance of the lower of actual cost and replacement cost. In one concern at a particular time cost may be \$2.00 per unit while current buying price is \$2.50, and the inventory is accordingly priced at cost, 20% below the market. In another enterprise at the same time the same class of goods may be represented in the inventory at a cost of \$2.40 per unit; again cost is accepted but the inventory value in this case is only 4% less than market. Similar variations in the degree of conservatism represented by following cost or market will occur in the single enterprise between classes of goods and between periods. Is there anything essentially conservative, moreover, in a scheme of valuation that merely shifts income from one period to the next? A low inventory at the end of one year is reflected in the cost of sales of the ensuing period, and as a result the income of the second period is increased (or the loss reduced) by precisely the amount by which the opening inventory was reduced through the operation of the "conservative" rule.



**"Cost or Market" and Comparative Income.** The particularly bad feature of an inconsistent valuation policy is the juggling of the operating income account which results. This point deserves emphasis by means of an illustration. The data of merchandise cost, sales, and inventory for the M Co. for the first three periods of operation are as follows:

	<i>First Period</i>	<i>Second Period</i>	<i>Third Period</i>
Purchases . . . . .	\$100,000	\$40,000	\$ 45,000
Sales . . . . .	80,000	60,000	100,000
Inventory—Cost . . . . .	60,000	70,000	65,000
Inventory—Market . . . . .	40,000	75,000	50,000

Using cost values consistently the operating incomes for the Company (assuming no costs other than merchandise) are determined as follows:

	<i>First Period</i>	<i>Second Period</i>	<i>Third Period</i>
Opening Inventory . . . . .	—0—	\$ 60,000	\$ 70,000
Purchases . . . . .	\$100,000	40,000	45,000
	<u>\$100,000</u>	<u>\$100,000</u>	<u>\$115,000</u>
Closing Inventory . . . . .	60,000	70,000	65,000
Cost of Sales . . . . .	\$ 40,000	\$ 30,000	\$ 50,000
Sales . . . . .	80,000	60,000	100,000
Operating Income . . . . .	<u>\$ 40,000</u>	<u>\$ 30,000</u>	<u>\$ 50,000</u>

With this inventory treatment the operating income moves with the sales figure; as sales fall the operating margin contracts, and as the volume of business increases the margin expands. The showing of the operating account, in other words, is what might reasonably be expected in view of the course of the primary activity of the business, aside from the possibility of changes in the relation of buying and selling prices.

Applying the rule of cost or market to the pricing of these data results as follows:

	<i>First Period</i>	<i>Second Period</i>	<i>Third Period</i>
Opening Inventory . . . . .	—0—	\$40,000	\$ 70,000
Purchases . . . . .	\$100,000	40,000	45,000
	<u>\$100,000</u>	<u>\$80,000</u>	<u>\$115,000</u>
Closing Inventory . . . . .	40,000	70,000	50,000
Cost of Sales . . . . .	\$ 60,000	\$10,000	\$ 65,000
Sales . . . . .	80,000	60,000	100,000
Operating Income . . . . .	<u>\$ 20,000</u>	<u>\$50,000</u>	<u>\$ 35,000</u>

Under this treatment the distribution of operating net shows no relation to the movement of sales. In the second period, with a 25% decline in the volume of business, income shows an increase of 150%; and in the third period, with a  $66\frac{2}{3}\%$  increase in sales over the figure for the preceding period, there is a fall in net of 30%.

The foregoing is a purely hypothetical example but the fact remains that in actual practice the use of cost or market, whichever is lower, in pricing inventories often results in such distortion of comparative figures as to make the reports in which they are incorporated definitely misleading. This is particularly true of monthly and quarterly reports in periods of sharp movements in prices.

**"Cost or Market" Interpreted as a Cost Approach.** A defense for the cost or market policy which is worthy of attention construes this policy as a means of implementing the thoroughgoing cost approach, rather than as a partial recognition of the market basis of valuation. The inventory, as suggested earlier, may be viewed as a pool of cost factors reasonably assignable to future sales. Accepting this view it may be argued that the inventory should include no elements of cost that are not significantly related to future business, that can not be expected to be recovered in the revenues to come. In the case of destroyed or lost goods it is obvious that the prospect of recovery has disappeared; in the case of damaged goods, or goods that have become obsolete or obsolescent, it is generally agreed that an appropriate portion of the cost should be absorbed as a current expense or loss (see discussion later in this chapter). Similarly a fall in the level of prices indicates that the prospect of full recovery of the costs of goods on hand is impaired, and it would seem to follow that writing off a reasonable estimate of the unrecoverable portion of such costs, in advance of the disposition of the physical units involved, is justified.

This line of support for "cost or market" is not without appeal. It may still be objected, however, that it may not be wise, as a settled policy, for the accountant to attempt to undermine the sales basis of measuring income to the extent indicated. Undoubtedly the movement of market prices is of real significance to business, but it does not follow that every fall in such prices should be assumed to bring about a realized loss in the cost factors represented in goods on hand. For one thing the buying prices and selling prices of the particular concern do not ordinarily move in complete agreement with respect to either amount of change or timing. Replacement costs may on occasion rise considerably, or fall considerably, without noticeable effect on the price of the product. Likewise selling prices may fluctuate without corresponding changes in costs. A minor fluctuation in either area, indeed, may be reversed before

any influence is felt in the other area. At any inventory date, accordingly, it may be very difficult to forecast the amount of cost incurred and represented in goods on hand the recovery of which is placed in jeopardy by a fall which has been observed either in current replacement cost or in current selling price of product. Has a loss already been suffered? And if so, in what amount? It is not easy to find convincing answers to these questions.

It may also be objected that the conception of the inventory as a pool of costs applicable to future sales does not imply that such costs are recoverable. The inventory consists of the costs of factors which will be utilized in the future. Such utilization, it is hoped, will result in revenues that will more than cover the costs incurred. But there is no assurance that this will be the case. A concern may operate at a loss for a period of years, but it does not follow that such losses should be in part anticipated in the accounts by a writing down of standard cost factors prior to their use in production.

The position may well be taken that in the case of standard goods flowing through the enterprise in terms of ordinary operating activity the use of the cost basis of inventory valuation is the preferred policy. With this policy in effect the difficult task of estimating and recording unrealized losses is entirely avoided (as far as regular inventory is concerned), and periodic income is measured in terms of a process of matching sales with the costs actually incurred in connection with the manufacture of the product sold.

**Inventory Reserves.** Where market prices have fallen substantially and it is desired to recognize this fact in some measure in the statements while at the same time retaining unadjusted cost figures in the inventory sheets and accounts, an inventory valuation "reserve" may be set up. The reserve account is credited with the estimated shrinkage in the value of the inventory and is shown as a contra to cost value in the balance sheet. The corresponding charge is treated as an adjustment of income or surplus rather than as an increase in cost of sales. The amount of the estimate may be very carefully worked out or it may be no more than a rough approximation of the effect of the recent movement in prices on the inventory. A procedure of this character evidently is closely allied to the "cost or market" method, with the amount of the write-down excluded from cost of sales.

An inventory reserve representing an actual fall in costs should not be confused with an appropriation of surplus covering an anticipated or possible decline. Surplus reservations of this character are discussed in a later chapter.

In general the practice of showing the estimated market value of the

inventory parenthetically on the balance sheet, with no adjustment of income-sheet data, is preferable to the use of a formal valuation reserve.

**Base-Stock Policy.** A number of prominent business concerns, both in this country and abroad, have at various times adopted the "base-stock" policy of inventory valuation, and many professional accountants have been impressed by the conservatism inherent in this policy. In essence the plan provides that the normal or base inventory of materials and other goods—the amount which must be carried as a "cushion" to enable the concern at all times to meet the needs of production or the demands of customers—shall be valued at a long-run "normal" price, while the excess of the inventory carried at any particular time over the required base stock shall be priced at current cost. The underlying theory is that the reserve stock of goods represents a permanent investment of capital analogous to the commitment in plant assets, and accordingly should be priced on the basis of the cost of acquiring the original supply (or on some other basis if this is not low enough to satisfy the conservatism of the management). Although the particular items making up the inventory are continuously changing, the capital fund involved, so the story goes, remains undisturbed as long as the volume of goods held remains at the basic level.

The base-stock plan has been supported in the smelting industry and other converting lines on the ground that it tends to distribute earnings over the various periods of operation in terms of the primary activities of the business, thus minimizing the influence in periodic reports of the movement in the price of the materials handled. At this point the advocates of base-stock valuation find themselves on common ground with the supporters of last-in, first-out. The two methods, in fact, are closely related.

On the whole the policy is not to be recommended. The normal or base volume of inventory is no more a fixed asset than the average bank balance, and to hold otherwise would simply mean an obscuring of the current-fixed classification—a useful line of division notwithstanding its limitations. A minimum "stock" of every resource required under the conditions of business operation must be continuously available if activity is not to be suspended, and hence this point has no bearing on the problem of classifying assets for statement purposes. (See discussion of current-fixed criteria in Chapter I.)

The objections to the permanent retention as an inventory value of the cost of accumulating the first inventory were pointed out in the discussion of last-in, first-out. Similar objections may be leveled at the practice of using an arbitrary and unchanging "standard" cost as a basis of inventory pricing. It should also be pointed out that while it is de-

sirable in principle to effect a separation of the income or loss resulting from the technical activity of the business from the income or loss attributable to general price movements and other changes in economic conditions, such separation is well-nigh impossible of accomplishment in any fashion not seriously artificial and misleading. In the case of the converter, for example, speculation in raw materials, except where offset by hedging, is an inevitable feature of operation, inextricably entangled with production in the narrow sense, and this condition should not be denied by the manner of preparing the periodic income report.

As a rule concerns using a "standard" price in valuing inventory adopt a figure which is as low as any price which the management has experienced, and the effect has generally been understatement of inventory in relation to actual costs through long periods. It is of interest to note, however, that during the period 1930-1932, when prices in many lines were receding sharply, a number of important companies were faced with the fact that market prices had fallen below the "standard" prices which for many years they had been using in their efforts to keep the values of their normal inventories on an ultraconservative basis. In this situation it was necessary to reduce the basic price to a new low, in order to continue the policy of undervaluation.

**Valuation at Selling Price.** The application of unadjusted selling prices to the inventory is considered improper by all accountants. To price the inventory at estimated sales value would involve recognition of income not validated by sale. What is more serious, such a pricing policy would in effect bring into the accounts costs not yet incurred and income not yet fully earned. That is, in the case of goods for which additional charges must be incurred prior to or in the course of final disposition, valuation at selling price would mean booking as assets and as revenue the estimated recoverable value of the additional cost factors together with the portion of income attaching to the phase of operation still to be undertaken.

Net selling price, on the other hand, has some standing in practice as a basis for the valuation of special kinds of inventories. By "net price" in this connection is generally meant current selling value less estimated costs still to be met in preparing goods for sale and in effecting sale and delivery. The principal circumstances in which the use of this basis is justified in some measure are: (1) cost data are unavailable or undependable; (2) sale of goods at going prices is assured without further effort or cost; (3) cost figures are decidedly higher than net realizable prices. Types of inventories to which such conditions attach are discussed in the following pages.

The use of net selling price avoids the effect of covering in inventory

values costs not yet incurred, but there remains the objection (even if the question of realization is ignored) that this basis of valuation permits recognition of unearned profit. Business income is accrued or earned in the most fundamental sense, it may reasonably be assumed, as costs are incurred in the process of operation, and operation includes all activities necessary to place the goods in the hands of the consumer and close the transaction. It follows that if there are costs yet to be undertaken it is reasonable to hold that a fraction of the prospective income is still to be earned. For example, in connection with a particular item of inventory the costs accumulated to date total \$90, estimated costs to be incurred amount to \$10, and current selling price is \$120. On the basis of net selling price the inventory figure is \$110. It may be urged, however, that since only nine-tenths of the total of cost has thus far been incurred one-tenth of the anticipated income margin has not yet been earned, and that the proper inventory value is therefore \$108. In tabular form the computation is as follows:

Current selling price . . . . .		\$120	\$120
Costs incurred to date . . . . .	90%	\$ 90	
Estimated costs to be incurred . . . . .	10%	10	10
	100%	<u>\$100</u>	
Estimated net income . . . . .		\$ 20	
Net selling value . . . . .			\$110
Less 10% of estimated income . . . . .			2
Inventory based on net selling value, with adjustment for unearned income . . . . .			<u>\$108</u>

It should be understood that the phrase "earned" income as used here should not be confused with "realized" income. Income may be earned on the basis of costs incurred and still not be realized in cash or receivables.

Listed selling prices are sometimes used as a starting point in the calculation of estimated costs. That is, a cost or replacement-cost inventory may be approximated by deducting from going selling prices the sum of costs yet to be incurred and estimated profit (or the amount of such costs less estimated net loss). In pharmaceutical manufacturing, for example, the great variety of products turned out, the extent to which materials are intermingled in processing, and the high percentage of indirect charges involved may make specific costing in a satisfactory manner so difficult as to justify the use for inventory purposes of costs estimated as indicated.

**"Retail Method" of Pricing.** This method of pricing, widely used by large department stores and in some other retail lines, represents an im-

portant example of the use of selling value as a point of departure in approximating costs, and grows out of the practice of marking merchandise with selling prices. Originally viewed largely as a periodic inventory expedient, the method has been developed in recent years into an elaborate, standardized scheme of continuous stock control. The system is largely restricted to stores and departments selling goods in the form received, and will give satisfactory results only where great care is exercised in handling invoices, classifying and storing merchandise, marking goods and reporting markups and markdowns, and tracing effect of breakage, loss, and other forms of discrepancy. It is generally agreed that comprehensive periodic inventories are required, regardless of the completeness of the control associated with the use of the retail method.

The inclusion of assignable transportation charges in cost of purchases is standard practice under the retail system of control. Some stores deduct discounts from invoice costs, and others treat them as a departmental "earning." There has been some debate as to the manner of calculating "gross margin," particularly with reference to the treatment of price changes authorized during the period. If it is desired to approximate the cost inventory via the retail method, markdowns as well as adjustments of additional markups should be taken into account in figuring the actual net markup or gross margin. The following table illustrates the computation of an estimated cost inventory for the first period of operation by the retail method.

Purchases, at net invoice cost . . . . .		\$25,000.00		
Transportation charges assignable . . . . .	\$1,000.00			
Estimated handling and storing costs . . . . .	800.00	1,800.00	\$26,800.00	66.67%
Original markup . . . . .		\$13,800.00		
Additional markups . . . . .	\$ 800.00			
Additional markup cancellations . . . . .	200.00	600.00		
		\$14,400.00		
Markdowns . . . . .	\$1,300.00			
Markdown cancellations . . . . .	300.00	1,000.00		
Net markup or gross margin . . . . .			13,400.00	33.33%
Retail value . . . . .			\$40,200.00	100.00%
Sales . . . . .			28,000.00	
Retail value of inventory . . . . .			\$12,200.00	100.00%
Margin included in inventory . . . . .			4,066.67	33.33%
Approximate cost value of inventory . . . . .			8,133.33	66.67%

**Inventories in Extractive Lines.** In the extractive industries goods ready to market are sometimes valued at selling price at date of inventory

less estimated costs yet to be incurred. The origin of this practice doubtless lies largely in the difficulties encountered in finding dependable cost figures to apply to inventories, but it can be defended on more substantial grounds. For enterprises engaged in extraction it is generally technical production rather than selling that is the primary activity. In other words, there is usually a broad market for an output of basic materials, which means that sale is assured at the going price, for any reasonable quantity, on any date. In view of this condition, it may be urged, income is effectively earned through the process of production and may reasonably be accrued with respect to product on hand awaiting delivery. (See Chapter XX for further consideration of this point.)

In the farming field the use of the "farm-price method" of valuing inventories has been officially recognized by the Bureau of Internal Revenue. This provides for valuation of unsold product at current market price less estimated cost of shipping and selling. The effect, evidently, is to throw the profit or loss on a crop into the year in which it is produced or becomes salable rather than into the year in which it is actually marketed. A special feature of the method is the provision for inclusion in inventory of unsold stock raised on the farm. This means that the estimated net market value of the natural increase in flocks and herds is added to assets and reflected in current income.

Growing nursery stock, readily marketable at various ages, presents a related problem of valuation. If all costs as incurred are charged to current revenue, with no recognition of the changing value of stock on hand, both financial position and operating results are likely to be misstated over a period of years, particularly in the case of new concerns and companies specializing in trees and other stock requiring several years to grow. One means of meeting the difficulty, occasionally found in practice, is to take inventories of growing stock at market value as of date of inventory less estimated costs of digging, packing, and shipping. The most reasonable alternative to this treatment is valuation on a cost basis from season to season, all actual carrying charges such as cultivating, irrigating, and transplanting being included (with perhaps some allowance for more general costs). It should be added that many nurserymen, influenced by the tradition of conservatism, inventory stock on hand at a nominal value, more or less arbitrarily determined and usually much below accumulated cost.

Crops such as winter wheat which are in process of growth at the inventory date are not as a rule readily salable prior to harvesting. For such assets, accordingly, cost incurred rather than estimated net realizable value is the most acceptable basis of valuation for inventory purposes. Standing timber is usually deemed to be a capital asset, not to be



included in inventory, although tracts are often "cruised" for the purpose of estimating merchantable content, and the question of the treatment of accretion and carrying charges is involved, as in the case of nursery stock.

In oil production, mining, and other extractive lines, valuation of salable product at net selling price is not common, although the policy has some supporters in these fields. The usual basis employed is estimated cost. An industry in which pricing at realizable market value is peculiarly justifiable is gold mining. Here sale of the finished product is assured at the current price per ounce, and there are no marketing or distribution costs other than those attendant upon physical delivery.

**Inventories in Construction Field.** Where the particular construction job or project requires several months (or several years) to complete, special treatment of costs of work in progress at the close of the period can be strongly supported. If inventories of jobs are always taken at cost this means that no income (or loss) is recognized prior to final completion and delivery or acceptance, and the result is likely to be an unreasonable distribution of income between seasons or other periods, particularly where the concern is handling a small number of large projects. Assume, to take a somewhat extreme example, that a shipyard in its first year of operation contracts to build five vessels at a total contract price of \$22,000,000, and incurs costs on this account amounting to \$15,000,000 although not completing any one of the units. Assume, further, that this is the only contract on which the concern is working during this first year. If in this situation the inventory of jobs in progress at the end of the year is taken at cost, the income report will show no revenue whatever, notwithstanding the fact that the yard has been active and a large amount of cost has been incurred. A reasonable treatment under the circumstances is valuation of work in progress on the basis of percentage of completion. Assuming an estimated total cost for the five vessels of \$20,000,000, it is evident that from a financial standpoint the job is 75% done and that 75% of the prospective net income of \$2,000,000, or \$1,500,000, is therefore subject to accrual. The general entries necessary to take this increment into account would be as follows:

Job #1—Work in Process Inventory . . . . .	\$1,500,000	
Income Earned on Job #1 . . . . .		\$1,500,000

In using this method of valuation care must be taken to avoid under-estimate of total job cost; direct costs should be liberally figured and proper allowance made for all overhead charges. In so far as future costs are covered by subcontracts there is of course little uncertainty as to the amount. It should be recognized that income earned on uncompleted

contracts is somewhat contingent as to amount and has not been fully realized.

In long-term construction the buyer usually inspects the work from time to time and advances sums as agreed as the work progresses. The appropriate accounting for such advances, assuming title to the structures being made resides in the contractor, is a charge to cash and a credit to the customer's account. (See illustration in Chapter XX.)

There has been some argument as to what should be meant by "percentage of completion." Is it percentage of time elapsed to total period required, percentage of material value or amount used to total value or amount required, or percentage of cost incurred to date to total estimated cost? In view of the fact that the problem is one of valuation and income, rather than extent of time or physical volume, it seems clear that a cost percentage is the appropriate measure and that a computation based upon total cost is more significant than one that considers only certain elements of cost. It is sometimes urged that amount of work done as shown by engineering estimate is the proper gauge, but this recommendation merely begs the question. The crux of the matter is the basis for the estimate, and no satisfactory substitute for a comprehensive cost percentage has as yet been proposed from any quarter.

Where erection of buildings, construction of pavement, or other activity is undertaken by the contractor on the premises of the client the title to all work in progress vests in the latter (although the builder may have a recognized lien), and in such cases the contractor has no inventory, strictly speaking, other than that represented by unused materials and supplies. Nevertheless the costs incurred constitute a proper asset balance until transferable to the client's account under the terms of the contract, and must be reported as an inventory or type of deferred charge to operations. Assume, for example, that a builder has agreed to erect a warehouse at a total contract price of \$100,000, payable quarterly on the basis of percentage of completion subject to a reservation by the client of 15%. The total estimated cost is \$90,000. The construction account shows accumulated charges during the first three months of \$5,000, \$15,000, and \$16,000, respectively, and at the end of the quarter the client is billed on the basis of a 40% completion. In this situation there is an inventory of accumulated construction cost of \$5,000 at the end of the first month, and \$20,000 at the end of the second month. At the end of the quarter, after the work done has been inspected and approved, and assuming no change in the estimate of total cost, the accrued costs are chargeable to the client and an element of earnings is recognizable, as shown by the following general-ledger entries:

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Client's Account . . . . .	\$40,000	
Construction Account . . . . .		\$36,000
Income Earned on Contract . . . . .		4,000

When the client's check is received for the agreed 85% of the amount billed, cash is charged and the client's account is credited, leaving a balance of \$6,000. This balance is not collectible until the entire job has been finished and approved.

If percentage of completion in such a situation as reported by the engineers does not correspond to the percentage of cost incurred, a ridiculous condition may develop. If the percentage of completion were set at 30%, for example, all other data in the illustration given remaining the same, the client's account would be chargeable with only \$30,000 and a corresponding portion of estimated total cost, or \$27,000, would be closed out of the construction account, leaving an "inventory" of \$9,000 of accumulated costs. If, on the other hand, the reported extent of completion were 50% the charge to the client's account would be \$50,000, the credit to the construction account, \$45,000, and income would be credited in the amount of \$5,000. As a result, income would be definitely overstated and there would be a meaningless credit balance of \$9,000 in the construction account.

**Joint-Cost Products.** Joint or common costs are present to some degree in many lines, and are particularly prominent in such fields as meat packing and oil refining. They give rise to a special problem in valuation because of the difficulty of allocating or assigning such costs to the various departments and classes of product by means of ordinary methods of costing. In the meat industry the problem is often met as far as inventory valuation is concerned by pricing finished products at current market prices less selling cost, a practice which is not seriously objectionable in this field in view of the very narrow margin of profit involved and the highly salable character of the merchandise. Where it is deemed necessary to inventory joint-cost products at cost, application of the rule that costs should be apportioned in terms of the relative market values of the various classes of output may be helpful. To illustrate the operation of this rule assume: during the first period of operation the M Co. produces 5,000 units of product *x* and 4,000 units of product *y*; costs unquestionably applicable to products *x* and *y* amount to \$10,000 and \$12,000, respectively; the common costs of both products total \$60,000; the inventory at the end of the period consists of 1,000 units of *x* and 600 units of *y*; the market prices of products *x* and *y* at the inventory date are \$8 and \$15 per unit, respectively. Under these conditions the market value of 5,000 units of *x* is \$40,000 and that of 4,000 units of *y* is \$60,000, a total of \$100,000. The cost of 5,000 units of *x* is then the sum of the

direct charges of \$10,000 and 40/100 of the common costs of \$60,000, or \$24,000, a total of \$34,000. Similarly the cost of 4,000 units of  $y$  is \$12,000 plus 60/100 of \$60,000, or \$36,000, a total of \$48,000. The required inventory costs therefore are \$6,800 (1,000/5,000 of \$34,000) for  $x$  and \$7,200 (600/4,000 of \$48,000) for  $y$ .

In some situations the stream of common costs may be broken down at appropriate stages of production through the application of relative market values. In hat manufacturing, for example, where the fur clipped from a single pelt by one operation is divided into two or more grades the accumulated common costs to the point of division may be assigned to the separate grades in proportion to the respective cost prices of such furs on the open market.

Relative market values can hardly be used as a means of assigning joint costs in public-utility cases and elsewhere where the question at issue is that of proper market prices. In such circumstances it is necessary to fall back on allocations based on a detailed analysis of operating conditions. The results of such allocations should not be taken too seriously, even if they are the best figures obtainable.

**Inventory Shrinkage and Deterioration.** Inventoriable goods, not usually considered to be depreciable, are nevertheless subject to shrinkage and deterioration, and in some circumstances such factors are sufficiently serious to require recognition in valuation. Coal, for example, suffers slacking or degradation, and this process obviously changes the grade and value. Similarly many types of chemicals are subject to unfavorable change in condition and amount through exposure or the passage of time. Food materials, such as the meat and vegetables used by a canning company, likewise may suffer deterioration and undergo shrinkage in weight and volume.

Market prices or other objective evidence may sometimes afford a basis for the adjustment required on account of inventory losses; in other situations the amount is purely a matter of judgment. The more dubious the status of the deteriorated goods the more liberal should be the amount of the write-down. Where the amount of the loss is unusually large it may be desirable to report it as a special item in the income statement. Careful planning of buying and utilization, together with systematic inspection and checking, are helpful in keeping the amount of inventory shrinkage within normal limits.

Goods subject to depreciation and amortization are sometimes labeled "inventory" although such practice is not to be encouraged. Concerns such as hotels and hospitals, for example, sometimes treat linen, dishes, and similar elements of equipment, relatively short-lived and consumed in large amounts, as inventories rather than as depreciable equipment

In manufacturing, small tools are often inventoried, and the amount to be charged to operation is found by comparing the inventory with the balance of the tools account (which means that when tools are broken, lost, or otherwise eliminated from service they are written into production costs rather than included in depreciation accruals). The amount of the tools inventory is nevertheless reported in the balance sheet under fixed assets. Occasionally such amortizable assets as picture films and book plates are improperly classified as inventories. In farming, the use of the so-called "inventory" method of measuring taxable income prescribed by the Bureau of Internal Revenue results in inclusion of dairy and draft animals, a type of fixed asset, in the inventory. An interesting aspect of this situation is the indirect recognition of appreciation—in the form of increasing market values for animals as they grow to maturity—as earned income.

Mention should be made in this connection of situations in which goods become more rather than less valuable as a result of such processes as chemical change, curing, and aging. The conservative rule is to price inventories of this character at cost, including assignable storing and carrying charges actually incurred. Where realizable market values are definitely ascertainable, however, there is something to be said for pricing at market, less selling and shipping costs, even if this means that an element of income not realized by sale is recognized. The process of aging, it may be argued, is an earning process, and distortion of periodic reported income may result from neglecting this fact.

**Other Applications of Selling Value.** Finished goods produced to customer's order under a binding contract, title to which has not passed to the vendee on the inventory date, are clearly worth the amount of the contract price less cost to deliver, and the propriety of valuation on this basis in this type of situation has long been recognized by accountants. If, however, the volume of contract production and deliveries is fairly uniform from period to period the use of a special method of pricing is not required, as valuation at cost will cause no serious distortion of the income account. Where the goods have not been inspected and accepted by the buyer, moreover, the possibility of rejection may render valuation at contract price questionable. The regulations of the Bureau of Internal Revenue do not authorize valuation of goods awaiting shipment on contract at adjusted selling price.

Used cars accepted by distributors as part payment on sales of new cars present an interesting inventory problem. The allowance granted the customer is the nominal cost of the car to the dealer, but this figure is not the true cost in most cases. The dealer appears to adhere to list prices in making sales but actually he cuts prices more or less sharply

through such devices as furnishing accessories without additional charge, providing "free" repair service for a period, and granting liberal allowances for secondhand cars turned in. To meet this situation the basis of valuation usually recommended is estimated selling price less estimated costs to be incurred in reconditioning and marketing. This treatment has the objectionable effect of assigning all profit or loss for the enterprise as a whole to sales of new cars. In view of the importance of used cars as a continuing phenomenon in the field of automobile distribution it may well be urged that the typical dealer is engaged in two closely related activities—buying and selling new cars and buying and selling used cars. If this interpretation is correct it is hardly fair to relegate the used-car department and the capital invested therein to a purely ancillary status, bare of earning power. The more reasonable treatment is to take used cars into the accounts and into inventory at the wholesale cash cost, the price which would be paid by a buyer who was dealing in used cars exclusively. The difference between such cash cost and the allowed price is then treated as a special discount attaching to new-car sales. This procedure gives the used-car department a chance to stand on its own feet as an income-producing division of the dealer's business.

Scrap and minor by-products on hand are often priced at net selling value, largely because of lack of satisfactory data as to cost. Imperfect, damaged, shopworn, and obsolete goods are likewise often included in the inventory at estimated net realizable value, a figure which is usually below cost in such cases. However, where "seconds" or other inferior products are a regular feature of operation, and are turned out in considerable volume, an effort should be made to assign an appropriate part of costs to such products and price inventory accordingly. Merchandise which has been repossessed, or voluntarily returned by customers, has often suffered some damage or deterioration, and net realizable value, conservatively estimated, may be an appropriate basis of valuation for inventory purposes.

The question of how to dispose of a loss arising from a special inventory write-down is of interest. If the condition is unusual and unwarranted there is some excuse for treating the write-down as a nonoperating charge. If the condition is typical or normal, on the other hand, inclusion of the charge in operating expenses is justified. For example, if a merchant has to carry a large stock of style goods during the active season so as to afford his customers a choice, the inventory loss suffered on leftover stock which must be disposed of in a postseason sale may reasonably be construed as an operating cost applicable to the sales of the active season—sales which could not have been made without the incurring of the expense in question.

## QUESTIONS

1. Name the main bases of inventory valuation.
2. Define actual cost in terms of the principal types of inventory.
3. "Cost is the preferred basis of valuation for income-sheet purposes, but is less satisfactory from a balance-sheet standpoint. Cost data are also less satisfactory than replacement costs from a managerial standpoint." Explain and discuss. With respect to what types of goods are cost values definitely unsatisfactory as a measure of inventory?
4. With an illustration explain the weighted-average method of estimating cost of goods on hand. Illustrate the use of this method in pricing materials issues. Does the movement of goods in the typical case conform to the assumption underlying the weighted-average method?
5. Illustrate the first-in, first-out method, including the pricing of issues. Outline the advantages of this procedure.
6. With an illustration explain the last-in, first-out procedure. Show that this method does not give the same results when applied continuously as when applied to the data of the period as a whole.
7. "One advantage of the last-in, first-out procedure lies in the fact that it has the effect of applying the latest costs to the revenues of the period." Discuss.
8. With an illustration compare the effect of last-in, first-out upon periodic profit with that of first-in, first-out during two successive periods in which prices fall sharply for the first period and advance sharply during the second.
9. From a managerial standpoint is it better to have the most recent costs reflected in cost of sales or in the inventory?
10. "Last-in, first-out is a constructive accounting development in that it tends to eliminate misleading fluctuations in periodic income reports." Discuss.
11. "Business men who have made the mistake of basing dividends on paper profits should welcome last-in, first-out procedure in the measurement of cost of sales and inventory balance, as this procedure prevents recognition of profits based on mere mark-up of the inventory." Discuss.
12. "In most lines it would be most unwise to utilize goods in last-in, first-out order." Defend this statement.
13. "Under last-in, first-out the amount of inventory reported may be several times the current cost of the quantity of goods represented therein." Is this true? Explain.
14. Can income taxes be reduced through the use of last-in, first-out procedure?
15. Define and discuss replacement cost as a basis of inventory valuation. What is meant by "unrealized" profit and loss in this connection? Indicate the special difficulties involved in finding replacement costs of work in process.
16. Explain the application of "cost or market, whichever is the lower," to the inventory and indicate precisely the significance of this basis of valuation.
17. State the main objections to the use of the conservative rule.
18. With an example, explain fully the distortion of the income account which may result from the use of "cost or market."
19. Discuss the proposition that "cost or market" is not inconsistent with the cost approach, under which the inventory is viewed as a pool of costs recoverable through future revenues.
20. Discuss the use of inventory "reserves" as a measure of conservatism.
21. What is meant by the "base-stock method" of valuation? State the objections to this method.
22. In what types of situations does adjusted selling value have some merit as a

basis of inventory valuation? Show how the use of this basis may involve recognition of an element of unearned income.

23. "As a matter of procedure selling price may be a starting point in estimating the cost value of the inventory." Explain and illustrate. Describe the "retail method" of pricing.

24. Discuss the valuation of farm produce. Petroleum products. Growing nursery stock.

25. With illustrative figures explain the application of "percentage of completion" in the valuation of long-term construction jobs in process.

26. Illustrate the treatment of accumulated costs and related receivables in construction work where title to the structure in progress does not lodge with the contractor.

27. Illustrate the use of relative market values in the assignment of common or joint costs to the two or more products resulting.

28. Discuss the valuation of used cars in the hands of a dealer. What is your recommendation?

29. How should damaged or obsolete goods be priced? How should the write-down be charged?

30. How should inventory losses due to shrinkage and deterioration be measured? Give examples of depreciable assets which are sometimes included in inventories. Should "income" represented by increasing market values of products undergoing curing or aging be recognized?



## VII

### INVESTMENTS

**Classes of Investments and Investors.** The principal classes of business investments are stocks and bonds (including long-term notes and related securities). Special types of investments, held to some extent by business organizations, include long-term contracts receivable, insurance contracts, trust funds, etc. Short-term receivables and claims are usually not viewed as investments.

Corporate stocks fall into two broad groups, common issues and preferred issues. Some companies issue but one class of stock, which then rates as common; in other concerns one or more kinds of preferred stock are employed as capital-raising devices. Any stock is preferred which in any way ranks above another issue of the same company with respect to income distribution or liquidation. Preferred stocks are often callable or redeemable, and some issues are convertible into other securities, under specified conditions. Stocks may also be classified into issues with par value and those without par, although this is not in general an important matter so far as the investor is concerned. See Chapters XXII-XXIV for discussion of capital stock from the standpoint of the issuing corporation.

Bonds and related securities have been issued in large amounts by public-utility enterprises, and by real-estate concerns. In these fields the extent of long-term borrowing—funded debt—often amounts to more than fifty per cent of the total capital raised. Bonds have also been employed, less extensively, in manufacturing, trading, mining, and other business lines. An important form of security for investment purposes is found in the bonds issued by governments, particularly the Federal government and the various municipal entities. The bonds of private enterprise are often specifically secured. The most common type of secured bond is that which rests upon some form of mortgage and thus represents a lien upon land and other tangible property. Bonds and notes based upon the general credit of the issuing organization are often referred to as “debentures.” Government bond and note issues usually rest upon the stability of the issuing unit and its ability to raise money

by taxation or otherwise. Some government issues are secured by the revenues of specific utilities operated by the government.

See Chapter XXVII for further description of bond issues.

There are several classes of investors. A considerable portion of the total of all stocks and all private and government bonds outstanding is held by individual investors as personal assets. Another class of investors is found in the various kinds of financial enterprises—insurance companies, investment concerns, banks, and trust companies. The holdings of such enterprises—except those of investment trusts—are largely in the form of bonds. Large amounts of bonds are held by educational institutions and foundations. In some cases corporations are organized primarily for the purpose of holding the stocks of particular companies, and operating companies also often own all or a major portion of the shares of associated concerns. Many corporations invest funds temporarily in high-grade, marketable securities, largely government bonds. Securities are also often found in the assets of corporations in such forms as pension funds, insurance funds, and replacement funds.

The accounting treatment of investments varies with the type of owner as well as the nature of the holding. With respect to the records of individual investors the major factor is the background of legal considerations, especially the income-tax rules. Large holders of securities, on the other hand, are also faced with problems of management and routine procedure, and require comprehensive systems of accounts suited to their particular situations. Long-term holdings, moreover, may require somewhat different treatment from short-term holdings.

**Cost of Securities.** Cost, the amount actually invested, is in general the basis which must be compared with the amount received upon disposition of a security in measuring taxable income, and it is accordingly expedient, except in special circumstances, to book securities at cost and to retain cost figures in the accounts throughout the period of holding. Cost includes brokerage and all clearly assignable charges. Where purchases are on a definite cash basis the amount of cost is measured and validated by the required payment. Where, however, the consideration is in whole or in part in the form of services or property other than cash—as in the case of original issues against contributed property and exchanges in connection with reorganizations, mergers, etc.—the true cost of the security acquired is not always evident. In all such situations the logical substitute for cash cost is the “fair market value” of the property turned over by the investor—a figure which is often more or less a matter of judgment and estimate. If independent transactions in the same security are taking place concurrently, they furnish fairly satisfactory evidence of cost to the investor who contributes property other

than cash. In the absence of a better basis the book value of the property parted with may be used to gauge the cost of the security acquired. In nontaxable exchanges in the field of income-tax administration the security received absorbs the cost (or other accepted basis of value) attaching to the property given in exchange.

Where two or more securities are acquired through a single lump-sum payment the total cost must be properly allocated. The M Co., for example, subscribes for 100 units of the common and preferred stocks of the R Co.—each unit consisting of one share of preferred and four of common—at a price of \$100 per unit. How shall the total cost in this situation be divided between the two securities involved? If reliable market quotations are available for one or both classes of stock, at approximately the date of M Co.'s purchase, such quotations afford a reasonable basis of apportionment. Assuming an independent price of \$3 per share for R Co. common stock and \$88 per share for the preferred the transaction should be recorded on the M Co. books as indicated by the following:

(1)			
R Co. Stock Units . . . . .		\$10,000	
Bank Account . . . . .			\$10,000
To charge cost of 100 units to temporary account			
(2)			
R Co. Common Stock . . . . .		1,200	
R Co. Preferred Stock . . . . .		8,800	
R Co. Stock Units . . . . .			10,000
To allocate cost of units to specific investment accounts			

If no separate values for the two classes of stock were established at the time the M Co. acquired the composite block it would be necessary either to postpone the apportionment or make it on an arbitrary basis. If the stocks have par values a division of cost in proportion to such values would be possible, but since par often shows little relation to actual value the resulting figures would not be dependable. Similarly a treatment by which the preferred stock were set up at par value and the balance (if any) of the total cost were applied to the common stock would have little justification and would, in general, overstate the cost of the preferred. If and when market prices for the separate issues become established the cost may be divided in proportion to such prices. Assume, for example, that some weeks after the purchase of 100 units by the M Co. the common stock of the R Co. is quoted at \$5 per share and the preferred stock at \$90—which gives a total market value for one unit of \$110. The total investment of \$10,000 may then be divided between the two stocks according to relative market values, 20/110 being charged to the common stock account and 90/110 to the preferred stock

account. The only objection to such allocation lies in the fact that under changing conditions these later market prices may not indicate precisely the relative values of the two classes of stock implicit in the original unit cost.

Where bonds are acquired in conjunction with stocks for a single payment the problem of apportionment is often dealt with by charging the bond account with par value and attaching the balance of the amount invested to the stock account. Such treatment is not justified, however, in any situation in which conditions indicate an effective cash value for the bonds of either more or less than par.

**Special Phases of Security Costs.** Installments paid on stock or bond subscriptions may be charged to a special investment account until the purchase is completed, or, as an alternative, the total contract price may be set up, an appropriate liability account being credited with the balance unpaid. On the whole the second treatment is preferable. Where stocks or other securities are acquired on margin the broker actually buys the security for the customer's account, advancing the amount by which total cost exceeds the margin deposited, and on the buyer's books, accordingly, investment accounts should be opened as in the case of securities purchased outright, and the broker's account should be credited with the amount borrowed. See discussion of accounting for short sales in following section.

Interest paid on unpaid balances in connection with the acquisition of securities on the installment plan may be viewed as a proper carrying charge and included in the cost of the security. Where this is done, however, any dividends or interest allowed by the issuing corporation during the period of purchase must be credited to the investment account. A possible alternative procedure is to treat all interest and dividend charges and credits associated with the transaction as income items. Inclusion in investment account of interest paid on funds borrowed to buy securities either on margin or outright is objectionable, as such investments, regardless of the source of funds, can hardly be construed as purchases "in process."

Assessments paid on stock holdings are commonly treated as an addition to investment cost. Voluntary pro-rata contributions by stockholders to eliminate deficits, retire indebtedness, or for other purposes may likewise be viewed as charges to investment account on the stockholders' books.

The price paid for a bond (or other interest-bearing security) acquired between interest dates includes accrued interest to date of purchase, and care must be taken to exclude this element from the investment account. As of the close of business on March 31, for example, the M Co. buys a

block amounting to \$10,000, par, of the R Co.'s 6% bonds, dated January 1, at a price of par and accrued interest, \$150. The appropriate entries at date of purchase are:

R Co. 6% Bonds . . . . .	\$10,000	
Bond Interest Receivable . . . . .	150	
Bank Account . . . . .		\$10,150

On July 1, when the first coupon is collectible, the following entries (assuming that the books of the M Co. have not been closed in the meantime and that the interest is immediately collected) are in order:

Cash . . . . .	\$300	
Bond Interest Receivable . . . . .		\$150
Bond Interest Earned . . . . .		150

The main investment account may be used to show the payment for interest accrued receivable provided the proper credit is made thereto when the interest is collected, but the procedure illustrated, which segregates the interest element in the total price paid as a distinct current asset, is preferable.

**Accounting for Short Sales.** A short sale is a transaction in which a trader in securities "sells" a block of stock at the current price without making immediate delivery. Such a sale is made in anticipation of a decline in the price of the security; the trader expects to make a profit by buying the stock—"covering"—at a lower price. The postponing of delivery by the vendor is made possible through an arrangement by which the broker "borrows" the stock for delivery to the party to whom the sale was made. Under the usual plan the trader is not required to cover as long as his account with the broker is properly protected.

From the standpoint of the trader's books the completed transaction—the covered short sale—has substantially the same effect as the ordinary long purchase followed by a delivered sale. In the case of the short sale, however, the order is reversed: the making of a contract to sell antedates purchase. This fact gives rise to some complications in the accounting. M, to illustrate, opens a trading account with a broker, depositing \$50,000 in cash. He then sells 1,000 shares of X Co. stock short at \$80 per share, including brokerage and all other charges. Later he covers at a price of \$75 per share, including all charges. The following scheme of entries is appropriate:

(1)

Broker . . . . .	\$50,000	
Bank Account . . . . .		\$50,000
To record opening of trading account with cash deposit of \$50,000.		

(2)		
Broker—Special	80,000	
Short Sales		80,000
To record short sale of 1,000 shares of X Co. stock at 80 in self-balancing memo accounts		
(3)		
X Co. Stock	75,000	
Broker		75,000
To record purchase of 1,000 shares of X Co. stock at 75		
(4)		
Broker	80,000	
X Co. Stock		75,000
Income on Stock Sales		5,000
To record covered short sale of 1,000 shares of X Co. stock at 80 in regular form, including recognition of income		
Short Sales	80,000	
Broker—Special		80,000
To close memo accounts recording short sale		

It would be possible to make no formal entries whatever on M's books until the sale is covered, but the use of the self-balancing memo accounts is preferable.

In the preparation of financial statements for the trader prior to the covering of the sale the memo accounts may be omitted (or introduced as self-balancing contingents on the face of the balance sheet), but a footnote is necessary to explain clearly the status of the deposit with the broker. In this connection it is advisable that the amount of any free balance—the amount subject to withdrawal at any time—and the minimum required deposit be separately reported.

In the case of long stock, unrealized profit or loss appears with the rise or fall in market price of the security held. Similarly unrealized profit or loss appears with the fall or rise in price of the stock represented by a short sale. In neither case is it necessary, as part of the regular accounting routine, to trace such changes in the trader's records. Nevertheless it must be borne in mind that movements adverse to the trader's position definitely impair his effective equity in the account with the broker, and may lead to the need for more margin or an enforced liquidation by the broker for his own protection. In the presentation of financial statements, therefore, it is advisable to take notice of any serious reduction of the trader's equity resulting from price changes, at least to the extent of disclosure as supplementary data. See discussion of market valuations in following section.

When a broker collects dividends for his customer on long stock the customer's balance is increased by the amount collected, and on the books of the investor there should be a corresponding charge to the account with the broker and a credit to dividend income. Similarly in the

case of dividends on short stock the broker will charge the customer for dividends which must be paid to the buyer of such stock and on the books of the investor there should be a corresponding charge to an appropriate expense or loss account and a credit to the broker. The amount of this charge, it is true, may later be more than offset by the covering of the sale at a profit, but this fact does not justify treating the dividend deduction as a deferred charge.

In the entries given above no use was made of accounts with "sales" and "cost of sales." In the case of the active trader, however, there is something to be said for the use of gross revenue and expense accounts similar to those employed by a dealer in merchandise, coupled with recognition of income only in terms of periodic totals. Such accounts have the advantage of emphasizing the extent of the main streams of business activity. If this procedure were introduced in the above case, for example, the entries under (4) would be modified as shown by the following:

(1)		
Broker . . . . .	\$80,000	
Sales of Stock . . . . .		\$80,000
To record covered short sale of 1,000 shares of X Co. stock at 80 in regular form		
(2)		
Short Sales . . . . .	80,000	
Broker—Special . . . . .		80,000
To close memo accounts recording short sale		

Then as part of the adjusting and closing entries at the end of the period there would be the following:

Cost of Stock Sales . . . . .	\$75,000	
X Co. Stock . . . . .		\$75,000
To close out cost of 1,000 shares of X Co. stock at 75		

The final step would be the closing of the sales and cost-of-sales accounts, together with all other operating charges and credits, to an operating summary. A special advantage of this procedure, it may be added, lies in the fact that no "income" balances are struck before all operating costs have been applied.

The scheme of recording outlined in the preceding paragraphs is of course applicable to long purchases and sales as well as to short sales and subsequent covering transactions.

**Treatment of Selling Costs.** The common practice on the books of the party selling securities is to record only the net proceeds—selling price less brokerage and other selling charges. This is a convenient procedure but is objectionable from the standpoint of general principles. The selling costs are actually incurred and like other classes of costs form a part

of the total costs of operation. In the case of a concern actively trading in securities the recording of net proceeds only may mean the failure to recognize explicitly a major element of expense. There is a very practical angle involved, moreover, in that selling costs incurred are presumably deductible for income-tax purposes in the case of any organization buying and selling securities as a business.

Selling costs applicable to short sales should be set up as a memo offset to the special short sales account, assuming that this account is credited with total selling price, and should be closed to the regular selling expense account as short sales are covered.

**Market Valuations.** Although cost is generally the preferred basis of handling the investment account, there are special situations in which the significance of current market quotations cannot be ignored. At times banks and other financial institutions in some jurisdictions have been required to show securities held at market prices in published statements of resources and liabilities, and there is always something to be said for disclosing realizable values where liquid position is a matter of great importance. Corporations having funds temporarily invested in marketable securities occasionally list the investment account at market value in the balance sheet, and it is always considered good practice to show such value parenthetically, or by means of a footnote, even if the account itself is not adjusted. Further, whenever the established market quotation is either far above or far below cost the latter figure obviously has little force in statements of condition, however significant it may be in measuring profit or loss on disposition in a situation dominated by purely legal considerations. If, for example, an investment concern holds stock which cost \$150 per share, and the current market price is only \$10, it is quite clear that rigid adherence to the cost figure in the accounts and statements destroys their significance as records of financial position. And surely it is not objectionable in such a case to make adjusting entries by which valuation accounts are set up to show the decline in market value of the security, not as a realized loss but as an offset to the investment account on the one hand and a contra to the investor's capital or surplus on the other. Similarly in the case of marked appreciation of holdings the reporting of the changed situation, under proper labels, is to be commended. In the depression of the thirties the making of such adjustments in the reports of insurance companies and other large financial institutions was strenuously resisted on the ground that the institutions affected would thereby be shown to be literally if not legally insolvent, and that such disclosure would impair confidence and result in further disaster. This is equivalent to saying that under critical conditions it is not feasible to permit accounting reports to reveal conditions



as they actually are—a dangerous doctrine to say the least. Granting that movements of quotations on the exchanges should not be taken too seriously, particularly by individuals or concerns holding large blocks of securities which they do not expect to dispose of and which probably could not be sold in full at going prices, it remains true that market prices of listed securities are on the whole the most significant evidence of value available and are so regarded by all parties involved.

Aside from the question of measuring financial position some support for the recognition of market values of security holdings may be found in internal managerial considerations. If, for example, an insurance company owns a large block of four-per-cent government bonds acquired at par which have risen in price as a result of changed conditions until they are on a three-per-cent yield basis the rate of return on investment shown by using cost figures is quite out of line with the actual earning rate on this class of security, and improper comparisons of earlier investments and current commitments may result if reliance is placed solely on recorded costs.

Securities in default naturally suffer impairment in value and a scaling down of recorded investment cost, as indicated by market quotations, is here especially justified. Securities that are clearly worthless, or have a negligible value, should be written off in full, regardless of the amount of cost. A situation in which valuation upward has a special justification is found where securities owned are convertible at the investor's option into other securities that have come to have an established market value substantially above the amount invested. In such circumstances, evidently, the appreciation is supported by an independent property value in addition to being readily realizable.

In general the regulations of the Bureau of Internal Revenue do not countenance the periodic revaluation of securities in connection with the income-tax return. In the case of recognized dealers, however, the consistent use of market prices in valuing the "inventory" of marketable securities is permitted. Market value is likewise used by the Bureau as a substitute for cost, at the outset, in the case of holdings acquired by inheritance and in a number of other special situations.

**Appraising Securities.** The great majority of security issues are not listed on the exchanges or bought and sold on any established market, and this means that the values of such securities subsequent to date of acquisition must be determined by appraisal—systematic estimate—rather than by reference to quoted prices. Estimating "fair market value" (sometimes defined as the price that would be fixed under the conditions obtaining as a result of negotiations between buyer and seller who are equally informed and equally desirous of consummating the

transaction) is necessary in finding a basis for purchase and sale, in setting terms of exchange in reorganizations and consolidations, in the settlement of estates, and in other connections.

The factors to be taken into account in appraising securities include: (1) earning power; (2) dividend policy; (3) cost and value of underlying assets; (4) capital structure and financial standing; (5) character of operating management. Earning power, in considerable measure expressing the significance of the other factors, is of outstanding importance in the valuation of stocks and debenture bonds, and even in the case of bonds secured by liens on tangible property it is coming to be recognized that the continuing success of the enterprise, rather than the value of specific assets, is the main bulwark of protection for the investor. The problem of estimating and valuing earnings, fraught with many difficulties, is discussed in Chapter XIX. Listing the dividend policy as a factor to be considered assumes that the level of dividend disbursements is a modifying influence in determining the effect of earnings on market value.

In the valuation of bonds or other securities in companies in imminence of liquidation, it should be noted, earning power gives way to realizable values of the property as the center of attention.

In appraising the fair market value of an unlisted stock or bond the market prices of comparable listed securities furnish a rough check on estimates.

**Value on Issuing Company's Books.** At the date of issue the value of a stock appearing on the issuing company's books is (or should be) the same as the cost or amount invested, which is also the market value at that point. Thereafter, however, the figures shown by the corporation's accounts are almost never in agreement with the investor's record, owing in particular to the accumulation of surplus (or deficit) as a result of operations. Moreover, later book values as a rule do not correspond at all closely to market prices, notwithstanding an underlying relationship. Book values reflect the results of the financial and operating activities of the company in terms of the methods of recording and valuation employed; market values represent a discounting of the prospects of the company, in the light of past history and immediate condition, compounded of the attitudes of many buyers and sellers, and greatly influenced by general business, financial, and political conditions. A wide divergence between the two valuations, accordingly, need not be surprising, although the long-run trends are seldom in opposite directions.

In appraising stocks for which no reliable market prices are available book value is occasionally used as evidence of hypothetical fair market value.

It is sometimes urged that a company holding a controlling interest

in the stock of another corporation should from period to period absorb in its investment account its share of the profit or loss accruing on the subsidiary's books. This recommendation is open to serious objections. Such a practice, in the first place, will usually result in an investment account composed of elements valued on different bases. The cost of the stock (the initial charge on the holding company's books) supposedly represents market value at the date of acquisition, a figure which is not likely to be in accord with the subsidiary's book value at that time, and if cost is the proper basis for the original commitment it is evidently inconsistent to recognize later increments (or decrements) as shown by the issuer's accounts. Further, in the eyes of the law the stockholder is quite separate and distinct from the corporation, and this fact is not altered by the size of the holding or the incorporation of the stockholder. Neither the capital nor surplus of the subsidiary, in other words, is the property of the holding company; only as the assets of the subsidiary are actually distributed by dividend payments or other legal process do they become the property of its stockholders, small or large. Booking subsidiary earnings in the investment account of the holding company therefore amounts to the recognition of unrealized profit, and by the same token the taking up of subsidiary deficits brings unrealized losses into the accounts. The fact that the device of the consolidated report is available as a means of representing the affairs of affiliated corporations as one, it may be added, lends force to the objections to the practice under discussion. Consolidated statements are dealt with in Chapters XXXIV-XXXVI.

Bonds and related securities appear on the issuing company's books at par or maturity values, sometimes modified by discount or premium. As in the case of stocks, cost to the particular investor may not coincide with book value, and market value likewise often shows a marked divergence from the book figure, particularly where the security is in danger of default.

**Dividend Stock.** A decision of the Supreme Court in 1920 established the view that a stock dividend represents merely a formal capitalization of surplus, a restatement of the equity of the stockholders which leaves the assets of the declaring corporation undisturbed. The Court held, in effect, that the receipt of a stock dividend raises no question of profit or loss but simply spreads the amount of the investment over a greater number of shares. Assume, for example, that the M Co. received a certificate representing a "dividend" of 500 shares of the common stock of the R Co. applicable to a holding of 1,000 shares of the same class of stock, acquired some time earlier at a cost of \$75,000 and since carried on the M Co. books at that figure. The stockholder now owns 1,500

shares instead of 1,000, but the total investment—and the amount of the equity in the R Co.—remains unchanged. The only effect on the investment account, in other words, is a lowering of the cost per share from \$75 to \$50. In this situation no accounting is required on the M Co.'s books other than a memorandum entry in the investment ledger indicating the increase in the number of shares held.

This interpretation can also be applied to a stock dividend paid in a different class of stock from that with respect to which the dividend was declared. In this case, however, a division of the investment account is required when any stock is disposed of, and the entries may well be made when the dividend stock is received. Modifying the foregoing example, assume that the stock delivered to the M Co. as a dividend is 500 shares of R Co. 6% preferred stock. In these circumstances the amount in the investment account, \$75,000, must be allocated to the two types of stock now held. What is a proper basis of division? In general relative current values, as shown by market quotations or careful appraisal, furnish the most satisfactory means of splitting the investment. If the market value of the preferred stock at date of issue is \$50 per share, and the concurrent price of the common stock is \$100, the implied cost of the 500 shares of preferred is 25,000/125,000 of \$75,000, or \$15,000, and the implied cost of the 1,000 shares of common stock held is 100,000/125,000 of \$75,000 or \$60,000. The appropriate entries are:

R Co. 6% Preferred Stock . . . . .	\$15,000	
R Co. Common Stock . . . . .		\$15,000
To transfer 20% of R Co. investment account to new account to cover implied cost of 500 shares of preferred stock received as dividend (further details or reference to supporting document)		

A "dealer" in securities using market prices in taking inventory would proceed as indicated above on receiving dividend stock (except that the inventory value at the preceding closing rather than cost would appear in the investment account where the original holding was acquired prior to the current period), and on the following inventory date the new stock like the old would be priced at market value.

In 1936 the Supreme Court modified its earlier position by holding that where dividend stock issued is not of the same class as the stock with respect to which it is issued, the recipient shareholder receives income in the amount of the market value of the dividend stock. Acceptance of this position for accounting purposes means that the investment account on the stockholder's books is charged with the amount credited to income, and that this amount must be compared with selling price in

determining additional profit realized or loss suffered when the dividend stock is disposed of.

There is little justification for the present attitude of the Court. Regardless of the class of stock issued to common stockholders the action means nothing more than a relabeling of the recognized equity of the stockholders affected; no corporate assets are distributed and the total book value of the interest of those who receive the new stock is not changed. In the case of a stock dividend issued to preferred stockholders the situation is not so clear. It can be argued that any stock-dividend declaration in favor of the preferred stockholders grants rights to those affected which are in addition to all rights previously acknowledged, and that the market value of such rights is therefore recognizable income. This view, however, is not altogether convincing. Presumably no dividend stock would be issued to preferred stockholders in excess of their accrued dividend rights. The issue of the stock, moreover, can better be considered as a formal recognition of dividend rights than as a liquidation of such rights. In other words, by issuing the dividend stock the corporation has postponed indefinitely actual payment of dividends to the shareholder in the amount of the stock issued. Aside from these considerations it seems clear that the question of the class of stock employed as a preferred "dividend" is relatively unimportant.

See Chapters XXV and XXVI for further discussion of the significance of stock dividends.

**Assignment of Dividend Stock.** Where the stock with respect to which the dividend stock is issued has been acquired in several lots the dividend stock received should be deemed to be applicable to the various lots in proportion to the respective amounts thereof. Further, in the sale of a part of the holding of either original or dividend stock (or both) where it is impossible to identify the stock sold in terms of particular lots acquired it is expedient to follow the rule of first-in, first-out—a method approved in the regulations of the Bureau of Internal Revenue. For example, the M Co. owns 1,000 shares of R Co. stock acquired as follows:

<i>Date Acquired</i>	<i>No. of Shares</i>	<i>Unit Cost</i>	<i>Total Cost</i>
July, 1935	200	\$30	\$ 6,000
October, 1937	500	20	10,000
October, 1940	300	40	12,000
	<u>1,000</u>		<u>\$28,000</u>

The stock was purchased through a brokerage house and carried in an account with the broker until November, 1940, at which time one certificate for 1,000 shares was delivered to the M Co. In April, 1941, a 50%

stock dividend in the same class of stock is received, in the form of one certificate for 500 shares. In June, 1941, 200 shares of the dividend stock are sold for cash at \$50 per share, and in October, 1941, the balance of the dividend stock and 300 shares of the original holding are sold for cash at \$60 per share, a single new certificate being received for the 700 shares then owned. In this situation the dividend stock is assignable to the various purchases as shown by the following:

<i>Purchased Shares</i>	<i>Dividend Shares</i>	<i>Total Shares</i>	<i>Total Cost</i>	<i>Per-Share Cost</i>
200	100	300	\$ 6,000	\$20
500	250	750	10,000	13 $\frac{1}{3}$
300	150	450	12,000	26 $\frac{2}{3}$
<u>1,000</u>	<u>500</u>	<u>1,500</u>	<u>\$28,000</u>	

The first sale of dividend stock accordingly absorbs all of such stock applicable to the first purchase and 100 shares of the amount applicable to the second, and the derived cost is \$3,333.33 (100 at \$20.00 plus 100 at \$13 $\frac{1}{3}$ ). The second sale consumes the remainder of the dividend stock, the shares comprising the first purchase, and 100 shares of the second purchase and the total cost is \$11,333.33, computed as follows:

150 at 13 $\frac{1}{3}$	= \$ 2,000.00
150 at 26 $\frac{2}{3}$	= 4,000.00
200 at 20	= 4,000.00
100 at 13 $\frac{1}{3}$	= 1,333.33
<u>600</u>	<u>\$11,333.33</u>

The entries for the two sales are:

June, 1941		
Cash	\$10,000.00	
R Co. Stock		\$ 3,333.33
Income on Stock Sales		6,666.67
October, 1941		
Cash	36,000.00	
R Co. Stock		11,333.33
Income on Stock Sales		24,666.67

If as a result of exchanges or other complications the dividend stock cannot be identified and distinguished from the purchased stock the investment cost of a sale should be determined by complete adherence to the rule of first-in, first-out. That is, sales are assumed to absorb holdings in order, beginning with the oldest lot, and including dividend shares which have been assigned to the various lots.

**Bond Dividends.** According to the prevailing view (given formal expression by a Federal court in 1921) the investor who receives dividends in the form of bonds or other contractual securities has realized

income in the amount of the fair market value of the securities received. This interpretation is not altogether reasonable, particularly for income-tax purposes. There has been no transfer of corporate assets to the shareholder, and the total market value of his holdings will presumably not be changed by the receipt of the dividend securities. Moreover, unless the investor sells the bonds the transaction gives rise to no funds with which taxes may be paid. It would be more equitable to apply the original stock-dividend rule to all security dividends. This would postpone recognition of profit or loss until the securities received were sold, and the amount of profit or loss on sale would be confined to the difference between selling price and an equitable portion of the cost of the stock on which the dividend securities were issued.

If the prevailing legal rule is adopted for accounting purposes the bond-investment account is charged with the fair market value of the dividend bonds received (as derived from quoted prices or estimated). Then when the bonds are sold the recorded value is compared with the proceeds in determining the additional income realized or loss suffered. For example, the M Co. owns 1,000 shares of R Co. stock acquired at a cost of \$75,000. As a result of declaration by the R Co. the M Co. receives dividend debenture bonds in the face amount of \$25,000 and with a fair market value of \$20,000. The entries on the investor's books are:

R Co. Debenture Bonds . . . . .	\$20,000	
Dividend Income . . . . .		\$20,000

Later these bonds are sold for \$22,000. The entries are:

Cash . . . . .	\$22,000	
R Co. Debenture Bonds . . . . .		\$20,000
Income on Bond Sales . . . . .		2,000

**Treatment of Stock Rights.** To secure funds to finance programs of expansion corporations often issue additional capital stock, and the privilege of subscribing for such stock—the right of “preemption”—is usually reserved by the stockholders. In this situation warrants are emitted which represent rights to subscribe in proportion to stockholdings, and the question arises as to what adjustment if any is required on the stockholder's books upon receipt of rights and upon their disposition either by exercise or by sale.

The prevailing view holds that the issue of stock rights involves an implicit division of the investment account and that where such rights are sold comparison of implied cost and selling price is necessary in determining the element of profit or loss realized. It is contended, in other words, that stock rights, like stock dividends, represent a dilution of the existing equity of the stockholder and that the transfer of rights, like

the sale of dividend stock, reduces the extent of the stockholder's participation in the enterprise. The fact that the subscription price is usually considerably less than current market value, thereby giving the right itself a value, furnishes support for this interpretation.

In 1940, for example, the M Co. buys 1,000 shares of S Co. common stock at \$130 per share and in 1941 receives warrants representing rights to subscribe to 250 additional shares at par, \$100. Just before the rights are issued the stock has a market price of \$140 per share. After the rights are issued the price per share is \$132, and the market value of the right attaching to each old share is \$8, ignoring commissions and other charges. The rights attaching to 1,000 shares—the right to subscribe for 250 full shares of new stock—are accordingly worth \$8,000. (The market value of the right per share of old stock which may be expected is determined by subtracting from the market value of a share of stock before it sells ex-rights the quotient found by dividing the total market value with rights on of the number of shares entitled to one share of new stock plus the subscription cost of one new share by the number of shares, old and new. Thus, in the example, \$660 (4 times \$140, plus \$100) divided by 5 is \$132, and subtracting this amount from \$140 gives \$8 as the indicated value of the right attaching to each share. The value of the share right may also be computed by dividing the difference between the prior market value of the stock per share and the subscription price per share by the number of shares of stock involved, old and new. Thus,  $(\$140 - \$100)/(4 + 1) = \$8$ .) With a total market value of \$140,000.00 (the value of the stock, rights on, or the sum of the value of the rights plus the value of the stock ex rights) the amount of the investment account assignable to rights is  $8,000/140,000$  of \$130,000.00 or \$7,428.57. The entries necessary to transfer this amount to a special stock rights account are:

S Co. Stock Rights . . . . .	\$7,428.57	
S Co. Common Stock . . . . .		\$7,428.57

If the rights are sold at \$8 the entries—again ignoring commissions—are:

Cash (or broker's account) . . . . .	\$8,000.00	
S Co. Stock Rights . . . . .		\$7,428.57
Income from Sale of Rights . . . . .		571.43

Assuming the M Co. exercises its rights instead of selling them the appropriate entries are:

S Co. Common Stock—New . . . . .	\$32,428.57	
Bank Account . . . . .		\$25,000.00
S Co. Stock Rights . . . . .		7,428.57



The use of the rights account is evidently optional and—where the rights are exercised—the opening of the “new” stock account is not essential provided the calculations have been made as indicated and proper notations recorded on the investment account when the cost of the additional acquisition is posted. In any event, if and when the new stock is sold it is essential that the amount closed out as its cost include the implied cost of the rights, \$7,428.57.

The application of rights to a holding of stock acquired in a number of lots, and the determination of the source of shares sold under such conditions, should conform to the rules explained in the preceding discussion of stock dividends.

Frequently the holdings of a particular stockholder are of such a character that the right to subscribe for a fraction of a share is represented in the warrants received. In this situation an additional warrant or warrants may be purchased to make up the right to a full share, the warrant may be sold, or it may be allowed to lapse. Under the first alternative the additional cost should be included with the subscription price as part of the new investment; under the second, the profit or loss on the sale would be determined by assigning to the fractional warrant the proper portion of the implied cost of the right to subscribe for an entire share; under the third, a loss should be recognized equal to the implied cost of the lapsed warrant.

Where stocks are purchased with warrants attached, representing rights to subscribe for additional shares under prescribed conditions, the cost of the warrants is to be determined by reference to relative market values, as explained above, and if the warrants are used in acquiring stock such cost should be treated as a part of the investment in the new stock.

Often warrants are issued carrying a subscription price (or series of prices, over a period of years) equal to or above the prevailing market price at date of issue. In this situation no value is to be attached to the warrants at date of issue (except, perhaps, in the case of substantial blocks of warrants which may have some speculative value because of the assurance afforded of the right to participate in the profits of the enterprise, without further commitment, in the event that it becomes highly successful).

**Conversions and Exchanges.** When stocks that carry the privilege of conversion into another class of security are exchanged as provided in the agreement appropriate entries are required in the investment accounts. Assume, for example, that in 1935 the M Co. invests \$100,000 in 1,000 shares of S Co. preferred stock, convertible at any time for five years at the shareholder's option into common stock on a share-for-share

basis, and that in 1940, when the common stock has a market value of \$125 per share, the conversion is effected. This transaction is equivalent to the sale of the preferred stock for cash at \$125 per share and the investment of the proceeds in the common stock, and should therefore be recorded as indicated by the following:

S Co. Common Stock . . . . .	\$125,000	
S Co. Preferred Stock . . . . .		\$100,000
Income on Stock Conversion . . . . .		25,000

Similarly a conversion of bonds into stock or other type of security should be recorded by closing out the cost or other book value of the bonds and setting up the fair market value at the date of conversion of the security received, the difference being recognized as gain or loss. In such conversions, unless they are made on an interest date, adjustment for accrued interest is in order.

If the security received through a conversion—or any other form of exchange—has no ascertainable market value its cost may be assumed to be the market value of the security delivered. If the market value of neither security can be reasonably determined the expedient treatment is to charge the new security to investment account at the amount at which the old security was carried.

In reorganizations and consolidations exchanges of securities are made on a large scale, and with respect to the individual holder the transaction is often virtually compulsory. In such circumstances the preferable treatment in general is to record the security received at the book value (to the holder) of the security exchanged, with no recognition of gain or loss. This is particularly desirable in the case of split-ups and other forms of recapitalization that are accompanied by no vital change in the affairs of the enterprise and leave the investor in substantially the same position as before. On the other hand in a merger or consolidation that results in placing in the investor's hands a security substantially different, in name and in underlying properties, from that previously held, a treatment similar to that outlined above for voluntary conversions can be defended. In the case of a reorganization resulting from financial embarrassment or downright insolvency the value of the securities received by the particular investor may be substantially less than the recorded value of the securities deposited in exchange, and in this event the amount of the loss suffered should be recognized.

The question of exchanges is dealt with at some length in the regulations of the Bureau of Internal Revenue, and a number of conditions are outlined under which transactions of this character are deemed to be "tax free."

In some exchanges the investor receives cash or other property in

addition to securities. In transactions of this type the taxable gain is limited to the sum of the cash and the fair market value of the "other property" received, and the basic value of the stocks or other securities acquired in the deal for subsequent income-tax purposes—according to the general rule—is the same as the cost or other allowable basis of the securities given in exchange reduced by the amount of money received and increased by the amount of taxable gain (or decreased by the deductible loss) recognized when the exchange is made. For example, the M Co. owns 1,000 shares of K Co. common stock bought in 1935 at \$100 per share and since carried at cost. In 1941 the K Co. merges with the S Co. and the M Co. receives 1,000 shares of common stock in the new KS Co. worth \$60 per share, 500 shares of KS Co. preferred stock having a market value of \$45,000, U. S. Government bonds with a value of \$10,000, and \$5,000 in cash, making a total proceeds of \$120,000. In this situation the amount of book gain is evidently \$20,000, but the taxable income is only \$15,000, the sum of the cash and the value of the government bonds. The value to be recorded for the securities received, assuming the tax basis is accepted, is \$110,000 (the cost of the original holding, \$100,000, less the cash received, \$5,000, plus the taxable gain, \$15,000), an amount equal to the sum of the cost of the old stock and the value of the bonds. The new stocks, then, have the same basis as the stock exchanged, \$100,000. Allocating this figure to the blocks of KS Co. common and preferred stock acquired in terms of relative market values results in an assignment of \$57,142.86 (60,000/105,000 of \$100,000.00) to the common stock and \$42,857.14 (45,000/105,000 of \$100,000.00) to the preferred. The entries covering the exchange, in summary form, are as follows:

Cash . . . . .	\$ 5,000.00	
U. S. Government Bonds . . . . .	10,000.00	
KS Co. Preferred Stock . . . . .	42,857.14	
KS Co. Common Stock . . . . .	57,142.86	
R Co. Common Stock . . . . .		\$100,000.00
Income on Exchange . . . . .		15,000.00

Labeled as "wash sales," transactions in which the investor within thirty days either before or after date of sale acquires securities "substantially identical" with those sold are treated under the income-tax regulations as exchanges, not affecting the income account, in all cases in which the sale is made at a loss. The regulations further provide for inclusion of the disallowed loss with the cost of the security repurchased for the purpose of calculating gain or loss in the event of subsequent sale. In general, purchases and sales made in the "ordinary course of business" are exempt from the application of this highly arbitrary rule.

**Return of Investment.** As a result of the sale of particular assets such as land or securities, permanent curtailment of operations and consequent decision to release funds otherwise designed for replacement, and other special conditions, stockholders may receive liquidating "dividends" which represent return of investment rather than income and which should accordingly be credited to the investment account. Assume, for example, that the M Co., owner of 1,000 shares of R Co. common stock, receives a dividend amounting to \$5 per share, \$3 of which is earmarked as a pro-rata distribution of capital funds. The appropriate entries are as follows:

Cash	\$5,000	
Dividend Income		\$2,000
R Co. Common Stock		3,000

If the investor has held his stock for a considerable period without revaluation of the investment, and the cost is much less than the value as shown by the corporation's accumulation of assets, the amounts received as capital dividends in partial liquidation may be sufficient to more than absorb the entire amount appearing in the investment account. In this situation the investment account will have been entirely written off, and if the security still has a considerable value it may be desirable, in order to bring the accounts into harmony with actual conditions, to recognize on the books a conservative estimate of such value by charging the investment account and crediting a special surplus account. All amounts received in liquidation in excess of cost, needless to say, represent realized income.

Bonds and preferred stocks are often redeemed by call under conditions stipulated in the contract, and the call price is usually somewhat higher than the original issue price. The M Co., for example, owns a block of R Co. 6% bonds purchased for \$50,000, which is also par value. These bonds are called at 105 and accrued interest for six months, and the M Co. receives \$54,000 upon delivery of its bonds. The appropriate entries are:

Cash	\$54,000	
R Co. 6% Bonds		\$50,000
Profit on Redemption of Bonds		2,500
Bond Interest Income		1,500

These entries assume that no part of the accrued interest of \$1,500 had been booked as a receivable by M Co.

When a corporation is terminated and completely liquidated the investment account of any holder of securities therein must be closed, and the difference between the investment balance and the sum received represents gain or loss as the case may be. In the rare situations in which

property other than cash is returned to the investor the market value of such property must be estimated. Where the liquidation is the result of insolvency it is well for the investor to close the security owned into a special account, pending final settlement, and if considerable time will be required in effecting a reorganization or liquidation and the estimated amount of recoverable value is small it is advisable to accrue the estimated loss on the books. Defaulted bonds are often deposited with a trustee during the period of reorganization or liquidation, a condition under which the use of a special account by the depositing investor is particularly justified. For an illustration assume that the M Co. owns a block of V Co. 6% bonds, purchased for \$10,000 in 1935 and since carried on the books at that figure, and that on July 1, 1941, the interest due—which was accrued by the M Co. on June 30—is defaulted. At this time the special status of the investment account should be recognized as follows:

V Co. Bonds in Default . . . . .	\$10,000	
Loss of Bond Interest Accrued . . . . .	300	
V Co. Bonds . . . . .		\$10,000
Bond Interest Receivable . . . . .		300

At the end of the accounting period it is estimated that the amount recoverable on V Co. bonds is \$7,000. The appropriate entries are:

Loss on Defaulted Bonds . . . . .	\$3,000	
V Co. Bonds in Default . . . . .		\$3,000
(or a special contra account)		

Assuming that the property is finally sold and that the net proceeds, amounting to 60 cents on the dollar, are distributed to the bondholders, the necessary entries on the M Co.'s books are:

Loss on Defaulted Bonds . . . . .	\$1,000	
Cash . . . . .	6,000	
V Co. Bonds in Default . . . . .		\$7,000

The estimated loss on a defaulted security is not deductible for tax purposes unless the security is clearly worthless. Nevertheless it is not advisable to carry defaulted securities at cost with no offsetting allowance for loss.

In enterprises engaged in exploiting wasting assets returning capital funds to stockholders in the form of dividends, as such funds are liberated by operations, is a common practice. (See Chapter XVII.)

**Dividend Income.** Dividends which have been appropriated out of current net profit or accumulated surplus by the declaring corporation, and which represent a genuine distribution of corporate assets, are income on investment and should be accounted for as such. The principal question arising in this connection is that of the proper occasion for

recognizing the realization of earnings. Dividends are usually authorized or declared by the board of directors on one date, payable to stockholders of record on a second date, and the checks are actually issued on a third date. The most conservative procedure for the investor is to book income when the dividend is received, and this practice is common among holders of securities. (It is also followed by brokers, in making dividend entries in customers' accounts.) However, when the date of record has been reached the declared dividend becomes an entirely sound receivable and may reasonably be accrued on the investor's books. Recognition of the dividend as earned on the date of declaration is not seriously improper provided there is assurance that the stock in question will be held until the dividend becomes definitely collectible.

At this point some attention should be given to a fundamental question, touched upon earlier in this chapter in connection with the discussion of the investments of holding companies. Are not corporate earnings, accumulated by an entity which is in effect the steward of the stockholder, actual income to the investor and subject to periodic accrual on his books? Does not the dividend process, in other words, consist simply of an orderly procedure developed to secure the transfer from the corporate treasury to the stockholder's bank account of funds already a part of the property of the investor? This question, underlying much of the misunderstanding and controversy in the field of income taxation, may be answered in part by reference to the prevailing legal concepts. The courts have held, again and again, that the corporation is not a partnership but a distinct legal entity; that the assets and earnings of the corporation are not the assets and earnings of the stockholder; that the investor in general has no influence upon the distribution of earnings except that flowing from his right to participate in the election of representatives. As long as this situation obtains, therefore, the accountant is compelled to hold that definite action by the board of directors is necessary before a stockholder is in a position to recognize on his books as realized income any portion of his equity in the profits of the corporation.

To the extent that market values of stocks reflect accumulating corporate profits, it is true, the appreciation of the investor's holding represents a form of accrual. However, this is essentially a matter of investment valuation rather than income realization and should be so dealt with. As a practical matter, further, market values are subject to manifold influences, and the valuation of investment consistently at market prices would therefore seldom if ever be equivalent, even quantitatively, to an accruing of corporate profits as income.

True dividends are usually paid in cash, owing particularly to the

difficulty of effecting pro-rata distribution of any other type of asset, but occasionally a dividend is paid in government bonds, merchandise, or other form of property. (At one time, for example, Newmont Mining Corporation distributed over 50,000 shares of Phelps Dodge Corporation stock as a dividend.) In such circumstances the investor should take the dividend into income account at the fair market value of the asset received, regardless of the formal amount of the declaration as reported on the declaring corporation's books.

The treatment of dividends in the form of bonds or notes was discussed earlier.

See Chapter XXV for discussion of dividends from standpoint of the declaring corporation.

### QUESTIONS

1. List the principal types of securities and investments. What kinds of enterprises hold investments on a large scale?
2. What does the cost of securities include? What is true cost when the consideration is not in cash form?
3. With an illustration show how total cost should be divided where two or more classes of securities are acquired for a lump-sum payment.
4. How should the investor account for an assessment called and paid on a stock holding?
5. Illustrate the proper treatment of interest accrued on a bond at date of purchase.
6. With an illustration show how purchases and short sales on margin should be handled on the trader's books.
7. What is the general objection to revaluing securities held at the market? Under what circumstances does such revaluation have especial justification?
8. Show how the management of an insurance company, for example, might be misled by failure to take into consideration changes in the values of securities owned.
9. Define "fair market value." What are the principal factors to be taken into account in appraising a security? Why may the dividend policy be considered an independent factor?
10. Contrast market value and value appearing on issuing company's books. Should a holding company absorb in its investment account its equity in subsidiary profit or loss?
11. With an illustration show how the investor should account for dividend stock which is homogeneous with the original holding: (1) when received; (2) when sold. Repeat, assuming the dividend stock to be of a different class.
12. Illustrate the proper procedure when the holding on which dividend stock is received has been acquired in a number of lots which cannot be specifically identified in terms of existing certificates.
13. Discuss the treatment of bond or note dividends received by the investor.
14. Outline the prevailing view as to the significance of stock rights issued to the investor. Illustrate the application of this view. Explain the origin and treatment of the fractional warrant.
15. Illustrate the proper treatment on the investor's books of a stock conversion. A split-up. An exchange in a reorganization.

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16. How is taxable gain (or deductible loss) computed in an exchange of securities involving cash or other property?
  17. Under what circumstances are distributions from corporate capital justified? How should the investor account for liquidating dividends? Explain the origin of "profit on redemption of bonds."
  18. What is the source of true dividends? Outline dividend procedure on the investor's books. Should dividends be "accrued" by the investor?
  19. How should dividends paid in property other than cash be accounted for by the investor?



## VIII

### INVESTMENTS—Continued

**Bonds Purchased at Discount or Premium.** Bonds and notes are often purchased at prices which do not coincide with par or maturity value, and the question arises as to what treatment should be accorded the element of discount or premium on the investor's books. Under one plan the investment account is maintained at actual cost, without adjustment, and the amount of discount or premium is recorded as an income-sheet item at maturity (where the security is held until collectible) or is absorbed in profit or loss realized through sale or other disposition. This treatment is especially satisfactory for the investor who does not expect to hold the security to maturity, which may be many years after the date of purchase, and in situations where the amount of discount or premium is too small to warrant the adoption of a scheme of accumulation. It also accords with the general requirements of the Bureau of Internal Revenue governing the calculation of gain or loss for tax purposes. Another possibility, with a limited application in practice, is consistent revaluation at the market. In the case of short-term bonds and notes, issued in a period of stable interest rates and quiet markets, the movement of quoted prices is likely to correspond closely to a schedule of accumulation or amortization. Over a long period, on the other hand, the prices of bonds and notes are in general affected more by changing market conditions, and variations in the circumstances of issuing corporations, than by the revaluation of the factor of discount or premium.

Systematic accumulation of discount or amortization of premium in the case of bonds with a high rating can be strongly supported, particularly for insurance companies and other investors holding large blocks of bonds from date of purchase to maturity. Assume, for example, that the M Co. buys a block of \$100,000.00, par and maturity value, of the 5% bonds of the R Co., interest payable semiannually and face amount due ten years from date of purchase, for \$92,561.26, to yield 6%, compounded semiannually. The discount of \$7,438.74 is surely not a profit which is earned in a lump at date of maturity; it is more properly described as an element of interest income which accrues throughout the

life of the security although collected at the termination of the contract. The M Co. pays \$92,561.26 for \$100,000.00 due in ten years and an annuity of twenty equal semiannual payments of \$2,500.00 each, a total of \$150,000.00. The difference between the cost of the security and this figure, \$57,438.74, is evidently the total income to be realized on the entire transaction. Of this amount only \$50,000.00 is collected prior to maturity; the balance of \$7,438.74 is received on the due date, together with the original amount invested. This additional element of income, however, does not emerge on the instant of maturity date; on the contrary it accumulates as a sound receivable in the form of a growing security account. The accruing of the discount is substantially equivalent to the making of an additional investment in the bonds. Instead of collecting each period the full amount of interest earned the investor permits the issuing corporation to retain a portion of such interest, with the understanding that it be included in the amount payable on the final interest date. See discussion in Chapter XXVII of significance of discount from standpoint of issuer.

Amortization of bond premium—the amount by which issue price, or cost at later date, exceeds maturity value—can be similarly defended. Assume, for example, that the M Co. buys a block of the bonds of the R Co. as in the foregoing illustration, except that the yield rate is 4% and the price paid is accordingly \$108,175.72. In this situation the premium of \$8,175.72 is certainly not a loss either at the date of purchase or at maturity. It is rather the additional investment which the M Co. is willing to make in view of the fact that the coupon rate of 5% is higher than the interest rate required by the investor on this class of security, and it is recoverable during the term of the security in the form of the semiannual payments made by the issuing corporation. The true amount of interest is again the difference between the total to be received under the contract, \$150,000.00, and the cost of the bonds, \$108,175.72, or \$41,824.28, but in this case the income total is less than the sum of the series of “interest” payments. The proper accounting treatment on the investor’s books, it may therefore be urged, requires the application of a portion of each semiannual collection to the amortization of the premium, so that the investment account at the close of each period will show the balance of the premium to be returned together with the par amount which is collectible at maturity.

In a great majority of cases the discount or premium represented in the original issue price of interest-bearing securities is less than five per cent of par. Market values of such securities, however, are subject to wide fluctuations, and hence purchases are often made at prices much below (or considerably above) amounts due at maturity. Where a large

discount reflects primarily a weak financial condition on the part of the issuing enterprise, which renders doubtful the collection of interest and principal sums in full, the regular accumulation of the discount in terms of increasing investment value and accrued income is hardly justified.

**Methods of Accumulation and Amortization.** The straight-line method, which provides for a uniform spreading of discount or premium throughout the term of the bond, has the advantage of simplicity. Under this method no reference to yield rate is required, and the only calculation necessary is the division of the discount or premium by the number of accounting periods, from the standpoint of the investor, from date of purchase to maturity. The periodic interest earning recognized is the amount of the nominal interest plus the straight-line discount accumulation or minus the straight-line premium amortization, and remains the same in each full period during the life—or term of holding—of the security. It is precisely this feature that makes the method somewhat objectionable. With no change in the credit to income, notwithstanding the growth of the investment account as a result of discount accumulation or the decrease in this account as a result of amortization, the rate of return earned on the book value of the investment changes period by period, an unreasonable condition.

The principal alternative to straight-line accumulation and amortization is the use of the interest method. Under this treatment the effective yield rate is determined and is applied to the book value of the investment at the beginning of each accounting period to determine the amount of interest earned, and the difference between this amount and the nominal interest for the same time is the accumulation or amortization. This procedure results in the showing of a uniform rate of yield on the investment throughout its life and thus meets the defect inherent in the straight-line method. To illustrate the general procedure in the case of bonds acquired at a discount, assume that the M Co. buys the R Co. bonds (see first example above in preceding section) on January 1, 1941, that the interest dates are January 1 and July 1, and that the Company closes its books on June 30 and December 31. With these conditions the entries arising out of this investment through 1941 are as follows:

January 1			
R Co. Bonds . . . . .		\$92,561.26	
Bank Account . . . . .			\$92,561.26
To record purchase			
June 30			
Bond Interest Receivable . . . . .	2,500.00		
R Co. Bonds . . . . .	276.84		
Interest Income . . . . .			2,776.84
To recognize interest earned for period, including accumulation of discount charged to investment account			

July 1		
Cash	2,500.00	
Bond Interest Receivable		2,500.00
To record collection of coupons		
December 31		
Bond Interest Receivable	2,500.00	
R Co. Bonds	285.14	
Interest Income		2,785.14
To recognize interest earned for period including accumulation of discount charged to investment account		

The amount of the first accumulation, \$276.84, is found by applying the yield rate per half-year, 3%, to the cost of the bonds, \$92,561.26, and subtracting the interest collectible, \$2,500.00. The accumulation for the second period is similarly ascertained by applying the yield rate to the book value of the investment, now increased by the first accumulation, and deducting the interest collectible. This procedure, continued for ten years, would bring the investment account to par value, the amount due at maturity, and would spread the discount earned in such manner that the rate earned on book value in each period is the same.

For an example of amortization of premium, assume all conditions as above except that the bonds were purchased at a cost of \$108,175.72 to yield 4%, compounded semiannually. The appropriate entries (omitting the record of purchase and of interest collection) are:

June 30		
Bond Interest Receivable	\$2,500.00	
Interest Income		\$2,163.51
R Co. Bonds		336.49
December 31		
Bond Interest Receivable	2,500.00	
Interest Income		2,156.78
R Co. Bonds		343.22

The income for the first period is 2% (the yield rate per half-year) of the original investment, and this amount, subtracted from the total collectible, gives the first amortization. The interest earned for the second period is similarly computed by applying the rate of 2% to the investment, now reduced by \$336.49, and subtracting the result from \$2,500.00 gives the second amortization. Continuing this process would write the investment down to par in ten years, and restrict the interest earned to the rate implicit in the purchase price.

In dealing with bond premium the title of the current receivable account should be, strictly speaking, "Bond Interest and Amortization Receivable." It should also be noted that the charging of the accrued amortization to a special account serves no purpose other than to show that this part of the investment account is currently collectible. The

alternative would be to accrue only the amount of true interest income on June 30, for example, and credit the investment account directly with the amount of amortization when collection is made on July 1.

**Purchases Between Interest Dates.** Assume that the price of R Co. 5%, ten-year bonds at date of issue, January 1, 1941, is \$92.56126 (per \$100.00 of par value), giving a yield of 6%, and that the M Co. buys a block amounting to \$100,000.00, par, on March 1. The equitable price at this point, assuming market conditions to have remained unchanged, is determined as follows:

Price on January 1 . . . . .	\$92,561.26
Accumulation for two months . . . . .	92.28
Collectible interest for two months . . . . .	833.33
	<hr/>
Price on March 1 . . . . .	<u>\$93,486.87</u>

The entries on the M Co.'s books to cover the purchase on this basis are:

R Co. Bonds . . . . .	\$92,653.54	
Bond Interest Receivable . . . . .	833.33	
Bank Account . . . . .		\$93,486.87

On June 30—assuming the M Co. closes its books on this date—the necessary entries are:

Bond Interest Receivable . . . . .	\$1,666.67	
R Co. Bonds . . . . .	184.56	
Interest Income . . . . .		\$1,851.23

And on July 1, when the first coupons are cashed, the entries are as follows:

Cash . . . . .	\$2,500.00	
Bond Interest Receivable . . . . .		\$2,500.00

Bonds are sometimes priced for a considerable period at a stated figure plus "accrued interest" at the nominal rate. On this basis the R Co. bonds would be bought on March 1 for the sum of the base price on January 1 and the collectible interest for two months, or \$93,394.59, and assuming that interest rates and other market conditions had not changed since January 1 this would mean a special saving or additional discount of \$92.28 for the buyer. Under this pricing arrangement, in other words, the seller is making no charge for the discount accumulated from date of issue to date of sale, and the buyer is accordingly making his purchase at a yield rate somewhat higher than the market rate of 6%. In such circumstances ideal procedure requires the finding of the yield rate which will accumulate the total discount in a period of nine years and ten months. However, if it is desired to use the rate of 6% as calculated on January 1 in preparing the accumulation schedule, the saving of \$92.28

may be separately accumulated by the straight-line plan. The following entries illustrate the use of this compromise procedure:

March 1		
R Co. Bonds	\$92,561.26	
Bond Interest Receivable	833.33	
Bank Account		\$93,394.59
To record purchase at January 1 price and accrued interest for two months		

June 30  
(1)  
(same as above)

(2)		
R Co. Bonds	3.13	
Interest Income (or special title)		3.13
To accrue 4/118 of special saving of \$92.28		

For the following six months the total accumulation would be the accumulation for the second half-year based on the January 1 price, or \$285.14 plus 6/118 of \$92.28, or \$4.69.

Purchases at a premium between interest dates are similarly handled. Assume, for example that R Co. ten-year, 5% bonds are issued on January 1 at a price of \$108.17572, to yield 4%, and that on March 1 the M Co. buys a block amounting to \$100,000.00, par, at the equitable price, determined as follows:

Price on January 1	\$108,175.72
Amortization for two months	112.16
	<u>\$108,063.56</u>
Collectible interest for two months	833.33
	<u>\$108,896.89</u>
Price on March 1	

The entries at date of purchase are:

R Co. Bonds	\$108,063.56	
Bond Interest Receivable	833.33	
Bank Account		\$108,896.89

On June 30 the entries are:

Bond Interest Receivable	\$ 1,666.67	
R Co. Bonds		\$ 224.33
Interest Income		1,442.34

If these bonds were priced on the January 1 basis plus "accrued interest" it would be necessary to adjust the yield rate or work out entries by the compromise method explained above.

**Accumulation and Amortization Schedules.** The nature of such schedules, referred to above as sources of periodic entries necessary in adjusting bond-investment accounts, is indicated by the excerpts shown in Chapter

**XXVII**, in connection with the discussion of bonds from the point of view of the issuing corporation. A schedule for the investor, of course, covers only the block held, and is adapted to the investor's needs.

Where the date of purchase does not coincide with date of issue or an interest date the schedule of accumulation or amortization is appropriately modified for the first period. If the investor's closing dates do not coincide with the interest dates, interim calculations are necessary unless the schedule is completely reconstructed. A schedule of the type illustrated in Chapter XXVII can readily be placed on a monthly basis by dividing by six the figures for interest income and periodic accumulation or amortization.

**Treatment of Serial and Redeemable Bonds.** Where several blocks of a bond issue, each with a different date of maturity, are purchased at a discount or premium and the prices are such that the yield rate is the same throughout, the accumulation or amortization can be calculated from period to period on the entire holding as in the case of a purchase having a single maturity date. If, however, each block has a different yield rate the only way in which periodic accumulation or amortization can be determined accurately is through separate computation and accounting for each block. (The same is true with respect to blocks of the same maturity, acquired at different dates and at prices yielding various rates of interest.)

The corporation issuing a bond often retains the right to call or redeem the security at its option at a stipulated price or range of prices, usually one to five points above par, and the possibility of redemption may have some influence on the investor's accounting. If the bond is purchased at a discount it is good practice to set up an accumulation schedule that ignores the possibility of redemption before maturity. If, on the other hand, the bond is bought at a premium it is conservative to provide a scheme of amortization which will avoid the showing of an investment balance in excess of the first redemption price at the date such price becomes effective. In any event the excess over the book value of the amount realized if and when the bond is called represents a profit realized in the period of redemption.

**Bond Prices and Yield Rates.** Where the bond price has not been settled in advance by conditions outside his control the buyer may find it necessary to calculate a bond value as the basis of a bid for a particular block or issue. This is particularly true of large purchases by underwriters and investment houses. Assuming that the nominal interest rate, term, and other features have been settled, the valuation consists essentially of a discounting of the various sums represented by the bond

at the market rate of interest—the rate, that is, at which it is believed the security in question can be distributed, due allowance having been made for selling costs and profit margin. Where the bonds are to be held by the purchaser, instead of being resold, the calculation takes the same form except that the final figure is the “wholesale” price, without adjustment. By “market rate” in this connection is meant the rate required under the prevailing investment conditions and in view of the characteristics of the particular issue as to risk, marketability, etc.

A number of formulas have been developed to be used in determining bid prices after a yield rate has been decided upon, and extensive tables have been worked out (see excerpt in Chapter XXVIII, Table 5) which give bond values for a considerable range of nominal and market rates and terms of life. One comparatively simple formula is based upon the fact that the difference between maturity value and market value equals the present value of an annuity, at the market rate, of the difference between the collectible bond interest per period and the amount such interest would be if the yield rate were substituted for the nominal rate. For example, the discount on a block of \$100,000, par, of ten-year, 5% bonds, interest payable semiannually, if purchased to yield 6%, compounded semiannually, is the difference between the collectible interest per half year, \$2,500, and interest at the yield rate, \$3,000, times the present value of an annuity of \$1.00 for twenty periods at 3% per period. Using the standard form for the present value of an annuity,

$$\frac{1 - \frac{1}{(1 + i)^n}}{i}$$

the discount in this case may be expressed as

$$3,000 - 2,500 \left( \frac{1 - \frac{1}{(1.03)^{20}}}{.03} \right)$$

Either by computation or reference to an annuity table (see Chapter XXVIII, Table 2) the value of the expression in parenthesis is found to be 14.87747486, and multiplying this number by 500 gives \$7,438.74 as the required discount. The estimated value of the bonds is accordingly \$92,561.26. Similarly, if the market rate on these bonds were 4% instead of 6%, other conditions remaining the same, the premium would be



$$2,500 - 2,000 \left( \frac{1 - \frac{1}{(1.02)^{20}}}{.02} \right)$$

which reduces to \$8,175.72, and the estimated bond value would be the sum of this premium and par, or \$108,175.72.

Where the market rate of interest for the security under consideration happens to coincide with the coupon rate, a price of par—ignoring commissions, etc.—is indicated. In this case, in other words, the present value of the series of interest payments plus the present value of the sum due at maturity is equivalent to the amount of principal as stated in the bond.

Particularly when the investor buys a block of bonds after the date of issue at the going market price, the first problem to be dealt with in setting up an accumulation or amortization schedule by the interest method is that of finding the rate of return implicit in the cost of the security rather than that of estimating the value of the bond on the basis of a desired yield rate. This is a somewhat difficult mathematical task and often requires the use of trial rates and methods of approximation. (See discussion of this topic in Chapter XXVII.)

**Mortgages.** Savings banks, building and loan associations, and insurance and trust companies, as well as individual investors, buy real-estate mortgages—that is, make loans secured by such mortgages—in large amounts. Although similar in investment character to bond issues based upon mortgages, the individual real-estate loan usually arises in connection with separate residences, farms, and other parcels of property, is for a relatively small amount, and is much less marketable or transferable than most bonds. With respect to the investor's accounting this means that the original holder is very likely to retain the mortgage and accompanying note to maturity and that there is accordingly slight excuse for periodic revaluation. In the typical situation, further, the amount loaned is the face of the mortgage and the only accounting required, after recording the investment, is the periodic booking of interest accruals and collections, the recognition of payments made by the borrower on principal account, and the closing of the investment account at maturity when the balance due is collected. In a concern handling many mortgages, of course, the amount of clerical work required is considerable, and special forms and books can be used to advantage.

A condition deserving special attention is found where the mortgage arises through a sale of property rather than through the making of an actual loan. M, for example, sells a piece of real estate to R for the

nominal price of \$50,000, R paying \$20,000 in cash and giving his ten-year, 6% note, secured by a mortgage of like terms, for the balance. What is the actual cost of the mortgage to M in this situation, \$30,000 or some other figure? It is quite probable that the cash price of the property sold is less than \$50,000, and in this event the value of the mortgage on a cash basis is less than the nominal amount. This fact would become apparent if the mortgage were immediately transferred at a discount, but is likely to be neglected where the investment is retained by the mortgagee. In measuring taxable income in transactions of this character the vendor is required to treat any obligations of the vendee which he receives as the equivalent of cash only to the extent of their fair market value—a regulation affording a practical basis for conservatism in setting up the original values of such obligations.

A definite case of mortgage discount is found where the mortgagor pays a "bonus" for the loan, a condition especially common in connection with junior mortgages. For example, M loans R \$9,000, taking as security a five-year, 6% second mortgage for \$10,000 on some real estate R owns. Here, clearly, the mortgage should be recorded on R's books at its actual cost rather than at face value (face value may be booked if desired, and a contra account set up for the amount of the discount), and the discount of \$1,000 should be systematically accumulated during the life of the instrument.

Commissions of brokers or other intermediaries and recording fees are usually paid by the mortgagor and hence do not enter into the mortgagee's accounting. Where the mortgagee pays any fee or commission, in addition to furnishing the face amount, such payment is in effect an addition to the cost of the security.

Mortgages representing liens on merchandise, equipment, livestock, and other chattels are usually of relatively short term and are not an important form of investment except in the case of finance companies accepting such instruments as security for advances to vendors and other creditors.

**Installment Contracts.** Certain types of purchase contracts have investment aspects and should receive some attention here. The most important example of the long-term installment contract arises in connection with the sale of real estate. Under the ordinary land contract the buyer makes a relatively small down payment, and agrees to pay the balance due, with interest, in a series of regular amounts. Possession is granted immediately but legal transfer by deed is postponed until all payments agreed upon have been collected.

For an example assume that on July 1 M sells R a parcel of land which cost \$40,000—and is carried on the books at that figure—at an

agreed price of \$50,000, payable \$5,000 down and the balance in quarterly payments of \$3,000 each, including interest at 6%, compounded quarterly. Ignoring possible selling costs and other complications, and assuming the contract to be worth its face value, the entries covering the sale on M's books are:

Cash		\$ 5,000	
R Contract		45,000	
Land			\$40,000
Income from Land Sale			10,000

On October 1, assuming the first installment to be collected at that time, the appropriate entries are:

Cash		\$3,000	
Interest Income			\$ 675
R Contract			2,325

At this time M, in need of additional cash, transfers the contract and all his rights thereunder to a finance company at a discount of \$2,675. The entries are:

Cash		\$40,000	
Loss on Sale of Contract		2,675	
R Contract			\$42,675

If the initial fair market value of the contract is indicated by this transaction it is apparent that the value as recorded on July 1 was an overstatement and that the "loss on sale of contract" is really an offset to the "income from land sale."

In these entries the contract is accepted as a valid asset and the land account is closed out at the date of "sale," notwithstanding the fact that title to the property is presumably retained by M. In any balance-sheet presentation at this point the special conditions should be clearly indicated.

Where a contract is discounted the problem of dealing with the discount on the holder's books arises. Straight-line accumulation coupled with the recognition of interest and return of principal as computed periodically on contract balance is a possibility, but is definitely objectionable in view of the steadily decreasing investment account. The more reasonable procedure is to find the approximate yield rate involved and apply this rate to the net investment each month as a basis for dividing the regular payment between income and amortization. As a first step the schedule of payments must be determined, either by reference to a suitable table or by actual computation. Having found the number of payments required the approximate yield rate can be ascertained by examining a table of present values for annuities and locating the amount that corresponds most closely to the cost of the contract. In the fore-

going example it will require sixteen regular payments, and a small additional payment, to liquidate completely the balance of the contract, \$42,675.00, after it is acquired by the finance company. (The periodic payments required to amortize \$1 and interest at  $1\frac{1}{2}\%$  per period—the rate per quarter corresponding to an annual rate of 6%—for terms of one to fifty periods are shown in the first column of Table 4, Chapter XXVIII. It is readily determined that 0.07076508, appearing on line 16, divided into \$3,000.00 yields \$42,393.78, only \$281.22 less than the amount of the contract to be amortized. Or, by multiplying \$42,675.00 by 0.07076508 it appears that a quarterly payment of \$3,019.90 for sixteen periods would just suffice to extinguish the contract.) The yield rate to the buyer on the amount invested, beginning with \$40,000.00, is roughly  $2\frac{1}{4}\%$  per quarter. (Referring to Table 2 in Chapter XXVIII one finds that the present value of an annuity of \$3,000.00 per quarter for sixteen periods at 2% is \$40,733.13 and at  $2\frac{1}{2}\%$  is \$39,165.01. The average of these two figures is \$39,949.07. The actual rate is somewhat above  $2\frac{1}{4}\%$ , in view of the fact that an amount of around \$300 will be collected in addition to the sixteen full payments. Beginning with a trial rate of  $2\frac{1}{4}\%$  per period, the actual rate can be approximated as closely as may be desired by successive test computations.) The following entries show the proper treatment on the finance company's books, accepting the trial rate of  $2\frac{1}{4}\%$  per period for purposes of illustration:

October 1		
R Contract . . . . .	\$40,000.00	
Cash . . . . .		\$40,000.00
To record purchase of contract at discount of \$2,675.00		
January 1		
Cash . . . . .	3,000.00	
Interest and Discount Earned . . . . .		900.00
R Contract . . . . .		2,100.00
To record collection of installment on January 1, and division of such collection between income (2.25% of net investment) and amortization of investment		
April 1		
Cash . . . . .	3,000.00	
Interest and Discount Earned . . . . .		852.75
R Contract . . . . .		2,147.25
To record April installment and division between income and return of investment		

If desired the contract might be set up at the face balance of \$42,675.00, offset by a contra entry of \$2,675.00, and in this event the entries covering collections and their apportionment would be modified, for example, as follows:

	January 1	
Cash . . . . .	\$3,000.00	
R Contract—Discount . . . . .	259.88	
Interest and Discount Earned . . . . .		\$ 900.00
R Contract—Face . . . . .		2,359.88

The discount accumulation the first quarter is the difference between the interest earned on the net investment at the yield rate of  $2\frac{1}{4}\%$  and the nominal interest accruing on the face balance of \$42,675.00 at  $1\frac{1}{2}\%$  (one-fourth of the stated annual rate of 6%), and the credit to the face amount of the contract is evidently the difference between the installment collected and the contractual interest of \$640.13. The figures for later quarters are similarly derived.

The market for contracts is not highly developed but it is fair to say that as the balance due is reduced by successive collections and the danger of default is thereby minimized the earning rate required by the investor falls. This suggests the possibility of periodic revaluation on the investor's books in terms of market values, in lieu of the use of a calculated yield rate as just explained. Aside from the general objections to such valuations, however, the narrowness of the market and the lack of reliable quotations make such a procedure impracticable.

**Annuity Contracts.** Any investment that yields a regular periodic return represents an annuity, at least in part. The term is usually restricted, however, to contracts through which the investor, by a series of payments, builds up an estate or fund, and which provide for payment to the investor, from his deposits and their accumulation, of a limited series of equal installments. Such contracts are not employed by business enterprises as a means of raising capital or of financing particular transactions, but in the insurance field they represent a familiar device by which individuals and, occasionally, organizations attempt to make provision for future needs.

Assume, for example, that M undertakes to purchase a twenty-year annuity of \$5,000.00 per annum, paying therefor \$5,659.76 annually for ten years. This gives a 4% basis. (In Table 2, Chapter XXVIII, the present worth of a payment of \$1.00 per period for twenty periods at 4% is found to be \$13.59032634. Multiplying this figure by 5,000 gives \$67,951.63. Turning to Table 3, Chapter XXVIII, one finds that the amount of the annual deposit required to amount to \$1.00 in ten periods at 4% is 8.329094 cents. Multiplying \$67,951.63 by this figure gives \$5,659.76, the required annual deposit.) In recording the cost the annuity account should be charged each year with the annual deposit and with the interest on the balance in the annuity account at the beginning of the period, the interest being credited to an appropriate income account. Following this procedure the annuity account will show a total cost at the end of

ten years of \$67,951.63. When, a year later, M collects the first of the twenty payments of \$5,000.00 each the entries on his books, continuing the 4% basis, are:

Cash . . . . .	\$5,000.00	
Interest Earned on Annuity Fund . . . . .		\$2,718.07
Annuity Contract . . . . .		2,281.93

Entries covering later collections are similarly handled (interest being computed in each case at 4% of the balance of the investment in the annuity), and at the end of twenty years the entire investment will have been amortized.

The life annuity presents an interesting accounting problem for the purchaser. The issuing company, one party to the contract in many similar undertakings, can base the cost to the individual annuitant on the average life expectancy of his age-group, but since the term of the particular contract is uncertain no clear-cut scheme of apportionment of installments collected between income and return of capital is available to the investor. A possible treatment consists of accepting normal life expectancy as the term of the contract and accounting for income and amortization on this basis. Under this plan any balance in the investment account at death would become a loss to the estate, and where the annuitant lived beyond his expectancy all installments received after the cost of the annuity had been absorbed would represent a special gain. Another possibility would be an appraisal of the value of the contract each year in the light of the standard cost of a new contract at the changed age. Where "life" contracts provide for a minimum number of payments to the annuitant or to his estate an accounting based upon a term equivalent to the installments certain is not unreasonable.

The perpetuity or continuous annuity is not common, but securities issued by governmental units sometimes provide for an unlimited series of payments to the investor. To the holder of such a security the entire amount of each installment is evidently income and no problem of periodic revision of investment account is involved except where changing market values are taken into consideration.

**Insurance Contracts.** Insurance policies can be viewed as having an investment aspect primarily in the case of life contracts. Assume, for example, that the M Co. takes out a straight-life policy of \$100,000 on the life of an officer, the Company being the beneficiary, and that the amount of the annual premium is \$3,000. In entering into such a contract it is evidently the Company's major purpose to secure a measure of protection against a certain contingency, rather than to build up an investment fund, but the fact remains that an accumulation of realizable resources is involved, at least to the extent of the stated surrender value.

The treatment usually recommended by accountants consists of charging premiums in full to operation the first two years (assuming no surrender value is recognized by the insurance company until after the third premium is paid), absorbing the initial surrender value against the premium paid the third year (or accounting for two-thirds of such value as a surplus adjustment), and thereafter charging an insurance asset account with the periodic increase in surrender value. Under a modification of this method, which emphasizes the going-concern conception, one-third of the first surrender value is accrued in each of the first three years, the insurance cost being reduced accordingly. Another method of isolating the investment element is to find the premium required on a term policy for the same amount, as the cost of term insurance presumably represents the bare cost of protection. If, for example, the premium on a five-year term policy of \$100,000, on the same life, is \$1,600, this amount might be charged to insurance cost on the M Co.'s books, the balance of \$1,400 being set up as an investment asset. An objection to this procedure lies in the fact that the cost of protection under a short-term policy is not generally the same as such cost under a noncancellable life policy. Still another possible method is to find the amount of the annual installment required by the insurance company to accumulate a fund of \$100,000 during a term equal to the normal life expectancy of the individual whose life is being insured, and to treat a corresponding portion of each year's premium as an investment. Any such plan assumes that the policy is to be continued throughout the life of the party in question—an assumption which may not be in accord with the fact. In any event the so-called "dividends" authorized by the insurance company should be handled as an offset to the contractual premium cost rather than as income.

Any life-insurance contract represents a contingent asset to the beneficiary in the amount of the face value, and it is therefore desirable for the auditor to call attention to the existence of such insurance in any complete report of financial condition.

**Funds.** Funds in the form of special bank accounts and certificates of deposit, whatever the purpose of the segregation, should generally be treated as a part of the cash resources (under an appropriate heading) and should be reported as such. On the other hand funds placed in the hands of a trustee in fulfilling the requirements of a bond indenture, in carrying forward a program of construction, in meeting pension obligations, or in other connection can best be viewed and dealt with as a form of investment. Likewise special deposits which are not trusted but which are so restricted as to be entirely out of the control of the

management, or not available for expenditure for a considerable period, may be viewed as fund investments rather than cash.

In general outline the accounting for a fund consists of the recording of the deposits, the periodic booking of income earned, and the recognition of the disposition or application of the fund for the purposes for which it has been accumulated. Regular reports from the trustee are essential to a proper accounting. Care must be taken to include in income all interest accrued, notwithstanding the fact that as part of the fund it may be entirely unavailable for the depositor's immediate purposes. Assuming the standing of the trustee to be unquestioned the depositor need not be concerned with the particular manner in which the money is invested. (See discussion of bond sinking funds in Chapter XXVIII.)

Difficult technical questions are often associated with the handling and interpretation of a particular fund. In pension funds, for example, there is the question of ownership, and the proper method of reporting. The corporation—in many cases—makes the deposits from its own funds; immediate title to the assets in which the money is invested vests in the trustee; the employees are the ultimate beneficiaries. In these circumstances is the fund an asset of the corporation, and if so how should it appear in the balance sheet? Undoubtedly the fund belongs to the depositor where the trust is revocable at its option, and the same is true where the liability to the employees is contingent upon conditions that may never be fulfilled. If, for example, a company establishes a fund designed to retire all employees of thirty years' standing on half pay, and goes out of business before any employee is eligible to participate therein, the fund presumably reverts to the general purposes of the corporation. Further, where the entire amount of the fund is covered by liabilities to employees which have definitely accrued it is still proper to treat the fund as a corporate asset provided the liabilities are also fully and clearly shown.

Funds are sometimes deposited to maintain credit standing, guarantee specific performance, etc., and where the period involved is of some length such funds may be viewed as a form of investment, using the term broadly. Usually such deposits are not specifically income-bearing. Advances on particular transactions, such as a deposit with a broker as security for a short sale, are a related type of asset.

**Estates and Other Interests.** In individual affairs an interest in an undivided estate is often an important asset, and various kinds of organizations often participate in estates. The accounting for such rights on the books of the legatee or other type of beneficiary is sometimes rather



troublesome, particularly in view of the doubt as to the fair market value of the equity and uncertainty with respect to the amount of periodic income on the accrual basis. In general it is appropriate for the "owner" of the interest—once his claim is solidly established—to recognize as an asset the proper portion of the total inventory value of the estate after making due allowance for debts, taxes, expenses of administration, or any other charges payable from the corpus, the same amount being credited to an appropriate proprietary account. Amounts received from the principal of the estate should be credited to the asset account, and receipts based upon estate income during the period of administration or trust should be booked as earnings. Net estate income accrued but not received by the beneficiary should also be recognized periodically—by charges to the estate asset or a supplementary account and credits to income—assuming the books of the beneficiary are on an accrual basis and the necessary data are made available by the administrator. When through liquidation of particular component assets of the estate the original inventory value is subjected to change, either favorable or unfavorable, it is in order for the beneficiary to adjust his estate account accordingly. When the estate has been liquidated and distributed in full, any debit balance in the estate account of the beneficiary is a charge to the special proprietary account originally set up, and where receipts are more than sufficient to absorb the original valuation the adjustment may be viewed as an addition to the estate or as a special profit, depending upon the circumstances.

An equity in a partnership or joint venture is another example of an investment share or interest. The initial charge to the asset account is the amount invested in cash or equivalent. Thereafter the account is increased through new commitments and recognition of profits retained in the business and is decreased by withdrawals or partnership losses. If the equity is sold the profit or loss is determined by comparing the investment balance, adjusted to date of sale, with the sale price. Revaluation of the investment account should be restricted to partnership reorganizations and other special circumstances.

**Investment Procedures and Records.** For the very small investor a file of invoices and statements received from brokers and underwriters may constitute an adequate underlying record, and the use of formal accounts may not be deemed necessary. Where a considerable number of securities of various issues are held, however, and purchases and sales occur from period to period, it is desirable that an investment ledger be maintained in which the data relating to each security owned are compactly assembled. The investment ledger may be in the form of a bound volume or a file of cards, with rulings to meet the needs of the particular

[illegible]

Insurance companies and other concerns investing on a considerable scale find it necessary to adopt a standard routine in acquiring, recording, safeguarding, and selling the various classes of securities handled. The first step is the authorizing of the purchase by the responsible official and a regular form may well be employed in this connection. The next step is placing the order or subscription with a broker or through other appropriate channel. Some concerns use a standard purchase ticket, showing amount and kind of security ordered, name of vendor, dividend or interest rate and dates, call or redemption terms, and other pertinent details. These are filed until the purchase has been effected and the security received, at which time the ticket is completed by filling in the number of the security, date of receipt, commission, total price paid, accrued interest or dividend included in price, etc. The audited ticket then becomes the source of the entries in the purchase journal and in the underlying security ledger. The securities themselves are carefully counted and examined to see that they conform to the order and—in the case of bonds—that all unmatured coupons are attached, and after checking are deposited in classified files in the storage vault. A systematic “stores” record at the vault is a desirable feature. Sales and deliveries are similarly controlled through the use of formal authorizations, sales tickets or invoices, and a suitable journalizing medium. In the case of sales through

brokers delivery is usually made prior to collection of net proceeds, but in sales made directly to customers the amount of the invoice is commonly received before or upon delivery. A sales account is seldom used; instead the amount of the margin of gain or loss (subject to the effect of operating expenses) is computed and booked in terms of each transaction. The use of accounts with sales and cost of sales can be defended, however, as indicated earlier in the chapter. Where the stock sold represents a portion of a holding acquired in a number of lots or purchases, and cannot be identified in terms of the particular lot or lots, the rule of first-in, first-out is the preferred method of finding the cost of the investment account applicable to the sale.

In the case of coupon-bond holdings a tickler system is necessary to ensure prompt clipping of coupons. As a rule coupons should be detached and forwarded for collection a few days prior to the due date. No steps are required of the holder in the collection of dividends and interest on stocks and registered bonds. Amounts received, however, should be periodically checked against reported disbursements by issuing organizations, and any discrepancies appearing should be immediately investigated. Care must be taken to credit the investment account (or the appropriate supplementary account) rather than income with interest or dividends collected for which a charge was made by the vendor when the security was purchased. Dividends declared by the issuing corporation and either due or receivable shortly, may be recognized as a current receivable at the close of the investor's accounting period, but it is not considered good practice to take into account dividends anticipated but not declared. Interest accrued on securities not in default, and where no default appears imminent, should be treated as earned.

**Audit of Investments.** Periodic verification of stocks and other securities is a considerable task for banks, insurance companies, brokerage houses, investment trusts, and other concerns handling investments on a considerable scale, and a specialized auditing technique has been developed in such fields. Where securities are owned outright an actual examination and checking of the certificates and other documents in the the portfolios is necessary to a satisfactory audit. In the case of securities carried in a trading account the underlying invoices and broker's statements often furnish adequate evidence of transactions and balances. Public auditors often require independent reports from brokers in verifying securities carried on account. Special care must be taken in verifying securities that have been deposited by the owner as collateral in connection with borrowings, or pledged in any other connection, and securities in process of transfer. In the audit of bonds and notes all interest coupons must be accounted for, and securities in default should be segregated.

## QUESTIONS

1. Explain the significance of bond discount and premium from the standpoint of the investor. Is accumulated discount taxable income?
2. Illustrate the straight-line method of accumulating discount. Amortizing premium. What is the principal objection to this method?
3. Explain and illustrate the compound-interest method of accumulation and amortization.
4. Illustrate the treatment of bond purchases between interest dates. Explain the "equitable" and "accrued-interest" methods of pricing.
5. Describe accumulation and amortization schedules.
6. Discuss the treatment of serial bonds on the investor's books. Should any consideration be given to call price in the investor's accounts?
7. "The price of a bond is the sum of the present value of an interest annuity and the present value of the maturity amount, at a yield rate suited to the particular security in the light of prevailing market conditions." Explain and illustrate.
8. Under what circumstances are mortgages issued at a discount?
9. With an illustration outline an accounting for land contracts on the investor's books on the basis of face value. Discounted market value.
10. Discuss the accounting for terminable annuities. Life annuities.
11. How should the investment aspect of life-insurance contracts be accounted for?
12. Discuss the accounting for pension funds.
13. Outline the treatment of an estate interest. A partnership investment.
14. Outline the principal features of a system of investment procedures and records.
15. How would you proceed to audit the security holdings of an investment trust?

## IX

### PLANT ACCOUNTS

**Character of Plant Assets.** The term "plant" is used here to designate all types of structures and equipment employed in business operation. Land, although often referred to in practice as a part of plant, is not included. The principal classes of structures are: (1) buildings housing operations—stores, factories, banks, etc.; (2) immovable containers—grain elevators, oil and gas tanks, coal sheds, etc.; (3) structural facilities—wharves, dams, shafts, bridges, viaducts, pavements, tunnels, etc.; (4) structural attachments—piping, wiring, foundations, drains, etc. "Equipment" covers: (1) stationary machines and apparatus—presses, lathes, cutters, folders, blowers, pumps, furnaces, rollers, shavers, digesters, etc.; (2) movable machines and facilities—office calculators, agricultural machinery, construction equipment, etc.; (3) carriers or "rolling stock"—motor trucks, railway locomotives and cars, ships, etc.; (4) conveyors and conductors—oil lines, water mains, power lines, etc.; (5) furniture and furnishings—tables, desks, chairs, carpets, shades, linen, etc.; (6) designing and reproducing facilities—patterns, molds, drawings, book plates, dies, lasts, etc.; (7) hand tools—shears, pliers, hammers, wrenches, chisels, etc.; (8) movable containers capable of repeated use—boxes, casks, bottles, bags, etc.; (9) animals—horses, mules, etc. used for breeding, dairying, racing, etc. This classification is intended to suggest the wide range of plant assets employed in business operation and is neither hard and fast nor exhaustive. Group (4) under structures includes items that might be classed as equipment. Some would object to listing water mains under even a broad definition of equipment. An example of the numerous kinds of plant property not easily classified is the grading and ballast on a railway right-of-way. Such assets as rubber trees, orange groves, vineyards, etc., are usually deemed to be subject to depreciation, and from this standpoint should perhaps be classed as plant resources.

Aside from length of life the distinctive characteristic of buildings and equipment as compared with inventories is the manner of their use. A factory machine, for example, is used in its entirety to furnish a series of similar services throughout its life, and although physical condition is

affected by use no part of the machine itself is embodied in the product. In the case of direct materials, in contrast, utilization occurs piece by piece, and a part or all of the material is physically incorporated in goods sold.

**Cost of Plant.** Plant units are generally acquired either by purchase or by fabrication or construction. The cost of purchased units is the net price paid, on a cash basis, plus freight or other transportation charges and cost of installing and placing in condition to serve. The cost of special foundations and supports is a part of total plant cost but may not always be classed as equipment. Discounts applicable to purchases of plant should be either excluded from asset accounts to begin with or credited to such accounts under a systematic procedure. (As a rule discounts not taken should be treated as losses.) The cost of constructed units includes—in addition to the direct material and labor—charges for surveying, designing, insurance, supervision, etc. Excavating cost is assignable to structures rather than to land. Depreciation of equipment used in hauling materials or in connection with other construction activities is a proper addition to cost, and the same is true of the cost of forms and other temporary structures employed. Outlays incurred on account of claims for damages due to accidents or other conditions growing out of building operations may be included unless the amounts are entirely unreasonable. In general the cost of wrecking and removing structures on property purchased, as contemplated at the time of purchase, is chargeable to land account rather than to buildings. No estimated contractor's profit should be added to cost, but care should be taken to include all elements of overhead applicable to the process of construction. The conception of construction should not be extended to the point of capitalizing carrying charges on property available for use but idle as a result of unfavorable business conditions. Construction accounts in process should be credited with the materials or equipment returned or recovered, with all discounts and allowances secured, with amounts realized through surrender of insurance policies applicable to construction activity, etc. In some cases it is considered expedient to treat minor revenues realized in connection with construction as adjustments of gross plant cost rather than as actual earnings to which an appropriate portion of costs incurred must be allocated.

The cost of units of buildings or equipment purchased or constructed as single items are usually clearly disclosed by the available records. Where, however, aggregates of property are acquired in organization, merger, and other special situations, difficulty may be experienced in ascertaining either total cost or the costs of particular units and classes on a cash basis. This is especially true where payment is made in whole

or in part through the issue of securities of uncertain value. In such circumstances it is necessary to accept nominal contract prices or rely upon estimates of appraisers and other evidences of value. If the securities issued have recognized market prices such prices are an important indication of actual cost. On the other hand little reliance should be placed on par and stated values.

**Classification of Cost.** In dividing the total cost of a mixed aggregate of property acquired it may be necessary to accept the apportionment indicated by relative appraisal values. Assume, for example, that the M Co. acquires the site, building, and equipment of the R Co. for a total payment of \$175,000, and that the estimated values of the three main classes of property as determined by appraisers are \$50,000, \$100,000, and \$50,000, respectively. With actual cost only \$175,000 the amount of \$200,000 is evidently unreliable as a measure of total cost, but it may not be unreasonable to assume that the relationships disclosed by the appraisal are significant. On this basis 25% ( $50,000/200,000$ ) of the cost of \$175,000 is assignable to land, 50% to buildings, and 25% to equipment.

The amount of cost assignable to land in such transactions is sometimes determined by deducting the appraised value of the depreciable assets from the total cost. Similarly the cost of buildings and equipment involved may be estimated by deducting the appraised value of the land from the total. This approach, however, is somewhat less satisfactory than that which employs relative estimated values in making the assignment.

The extent to which the cost of plant should be subdivided in the accounts is a moot question. For most concerns, it is fair to say, the classification in use is inadequate rather than overelaborate. Plant costs represent an important section of the resources of many enterprises, and the associated and derivative charges of maintenance and depreciation are often a substantial element in the cost of operation. It follows that plant assets, like materials, deserve a systematic and detailed accounting. In general plant records should afford information as to the cost of each main class of property, each important subgroup, and each major physical unit. In some cases, moreover, it is expedient to carry this analysis further than the individual building or machine, particularly where the component factors of the unit have varying service lives. The tires of a new motor truck, for example, may have a life of only one year although the truck as a whole can be expected to last for four. Similarly the lining of a furnace, the cutter of a machine tool, the roller of a typewriter, the paint job on a building, may be replaced several times during the life of the principal unit involved. In all such cases the subdivision of cost in

terms of important elements subject to separate renewal will facilitate sound accounting.

Classification of property according to function or department likewise is desirable although it is not ordinarily expedient to divide the cost of a particular machine or other physical unit which serves more than one department into two or more distinct plant accounts. The important matter in this connection is the appropriate assignment of maintenance and depreciation charges.

Determining the portion of the total cost of a machine or other unit that is reasonably assignable to a particular structural element is often a difficult matter. The amount that the factor in question would cost if acquired separately can usually be approximated, but this amount may be more than the cost of the factor acquired as a component part in an entire assembly. Another problem which arises where an effort is made to classify plant cost in detail is that of spreading the more indirect costs such as transportation and installation.

Further attention is given to classification of plant cost at various points in the following pages.

**Depreciation during Construction.** Normal deterioration occurring during the period of construction is assumed to give rise to no impairment of value for the plant as a whole. The investment in plant, in other words, is not subject to depreciation prior to the date at which it becomes ready for operation, unless the construction period is unduly extended. On the other hand, particular structures or units of equipment which have been used in the process of building or fabricating other assets do suffer depreciation during construction, and if the total cost of plant is to be properly classified in the accounts such depreciation must be recognized and appropriately spread.

In erecting a factory building, for example, a company uses four new trucks which cost \$1,500 each exclusively for building purposes. The estimated life of the trucks is three years. It takes one year to complete the plant, and the trucks are then released to the operating management. The company also erects at a cost of \$2,000 a frame building which is used in connection with construction activity for a period of nine months and is thereafter used in operation. The estimated total service life of the auxiliary building is ten years. Under these circumstances the entries necessary to recognize depreciation of the trucks and service structure during construction (using the straight-line basis and assuming no net salvage value) are:

	(1)	
Factory		\$2,000
Trucks—Allowance for Depreciation		\$2,000
To charge depreciation of trucks for one year to cost of factory building		



(2)	
Factory . . . . .	150
Service Building—Allowance for Depreciation . . . . .	150
To charge depreciation of service building for nine months to cost of factory building	

The question of depreciation during construction is especially important in connection with such properties as railways in which the process of construction covers a considerable period. Thus the depreciation of rolling stock applicable to the building of track and railway structures may be a significant amount, and neglect to accrue such depreciation results in understating the cost of fixed structures with corresponding overstatement of the cost of locomotives and cars applicable to subsequent operations. To put the point in general terms, the effect of ignoring depreciation during construction is not only bad classification of the cost of property at the beginning of regular operation, but—as a result of the varying service lives—improper distribution of depreciation charges in later periods.

Assignment of depreciation during construction is in general no more troublesome than the spreading of other overhead building costs. In accounting for equipment used to haul materials, for example, the depreciation becomes in effect a cost of the materials and should be charged to the property accounts on this basis.

Booking depreciation during construction, it should be emphasized, is intended to secure sound classification of plant cost and is not necessary where no problem of classification is involved. In building a stretch of road or track, for example, the section first constructed may be used in the process of extending the work, and may be subject to some deterioration in such process. But there is no object in attempting to calculate depreciation on the first section as a cost of other sections if the entire asset, when finished, is to be operated as a single unit and has an estimated service life which is the same throughout.

**Maintenance Cost.** Charges for maintenance must be incurred in connection with all types of plant assets, and in some cases the cost of upkeep and repairs during the life of a unit may amount to more than the original cost. As ordinarily defined maintenance charges include: (1) the regularly recurring costs of cleaning, adjusting, aligning, sharpening, and other forms of servicing necessary to keep property in good operating condition; (2) costs of renewing structural parts of plant units; (3) costs of major overhauling operations. The first class of charges represents the incidental, day-to-day maintenance service required in handling virtually all kinds of machines and apparatus and also needed in some measure in the operation of buildings and other structures. This section of maintenance clearly is external to the plant accounts and in general is chargeable

to operations as incurred. The cost of minor parts used in regular repair work may be included under this head. The second class of charges, the renewal of structural parts, is incurred more irregularly and may or may not be deemed to affect the recorded cost of property. If plant is rigidly defined in terms of such units as the distinct truck, machine, or building, the renewal of tires, gears, and roof represent repairs which in no way disturb the plant accounts (although this need not preclude the adoption of some system of spreading the cost of repairs). If, on the other hand, the cost of property is conceived in terms of structural elements subject to separate replacement this section of maintenance cost, like the cost of major units, should be passed through the asset accounts. In practice a compromise policy is usually adopted, although the trend in industrial accounting is in the direction of a more careful accounting for part replacements. In major repair and overhauling operations adjustment of plant accounts is very likely to be justified, as replacement of important structural elements is usually involved.

To illustrate the ideal treatment of renewal maintenance assume that the M Co. erects a building at a total cost of \$15,000, of which the amount of \$500 represents the bill for exterior painting. Four years later the structure is completely repainted, the cost of the work being \$600. Evidently it is the cost of the original paint job that should be represented in the operating charges of the past four years, and it is equally apparent that the cost of repainting is chargeable to the entire period through which it will remain effective rather than to the month or year in which the work is done. The proper entries to record the paint renewal, therefore, are as follows:

(1)		
Allowance for Depreciation and Maintenance . . . . .	\$500	
Building (or special subsidiary account) . . . . .		\$500
To recognize elimination of cost of original paint job		
(2)		
Building (or special subsidiary account) . . . . .	600	
Cash (or equivalent) . . . . .		600
To record cost of new paint job		

These entries assume that the precise cost of the first paint job has been accrued through an allowance for depreciation and maintenance. See discussion of depreciation accounting in Chapter XI.

The original costs of component elements are not always readily determined, even where the plant record is carefully kept. A motor truck, for example, is purchased for a lump-sum figure, and the invoice gives no indication of the amount applicable to tires and other parts subject to separate renewal. It is usually feasible, however, to make satisfactory estimates based on the price lists for parts or other available data. In

making such estimates care must be taken to allow for the fact that the retail values of separate repair costs are often considerably higher than the costs of such parts embodied in the price of a complete unit. The relatively high cost of separate parts, it may be added, means that the inclusion of maintenance renewals in property account tends to raise the level of plant cost and derived operating charges.

The line between maintenance and other operating charges is not always easily drawn. Maintenance is the cost of keeping a unit in condition to operate; it does not cover the cost of operating. Maintenance includes care and upkeep and replacement of parts; it presumably does not include power, lubrication, storage, insurance, and so on. In the operation of a motor car, for example, such costs as washing, battery charging, motor tuning, brake adjustment, and valve grinding represent maintenance charges, while the costs of gasoline and motor oil do not. A car with an empty tank may be in first-class condition, although it will not run.

**Special Maintenance Conditions.** The importance of maintenance varies sharply with the type of property and the conditions of use. The cost of upkeep on a fireproof warehouse may be negligible over a long period of years; a stretch of well-traveled gravel road, at the other extreme, requires almost continuous servicing if kept in a state of good repair. In some situations so-called maintenance amounts to piecemeal rebuilding. The ties in a railway track, for example, may be renewed a few at a time day by day and week by week for an extended period. How should such renewals be accounted for? The usual practice is to charge the entire cost directly to operating expense, except where an improved type of tie is laid. This treatment is not ideal, particularly in view of the marked changes in unit costs of labor and materials which occur over a period of years. If as a result of "maintenance" activities all ties of a particular installation are replaced at prices substantially above the level of original cost, and there is no adjustment of plant account, the recorded cost of property becomes definitely out of line with the actual cost of existing assets—a most objectionable state of affairs. Passing all piecemeal renewals through the plant account, where they are subject to depreciation, is a much more satisfactory procedure from the standpoint of correct reporting of asset costs and periodic operating charges. The objection that such treatment is not feasible because of the difficulty of calculating the cost of items eliminated need not be taken seriously, as reasonable estimates of such cost can be readily made periodically through the use of the rule of "first-in, first-out." It is assumed that accurate records of new units acquired, used, and on hand, and old units eliminated, will be available.

Some concerns make considerable use of secondhand materials, either purchased or salvaged from other operations, in repair work, and charge the estimated value or cost of the same directly to operations. Here again adjustment of the plant account is in order where the elements replaced are sufficiently important to justify recognition. Under the ideal treatment the cost of items eliminated should be carefully estimated and closed out, and the cost of making replacements included in the maintenance program should be capitalized. The effect in this case is a reduction in the cost of plant in use.

Occasionally equipment is purchased under an agreement by which the vendor furnishes all necessary repair service for a considerable period. The M Co., for example, installs a group of twenty specialized machines at a cost of \$100,000, including "free" servicing for a period of one year from date of purchase, and during the first year of operation receives maintenance service which, if paid for at regular rates, would have cost \$2,000. How should this situation be interpreted? The reasonable assumption is that the stated purchase price included a payment for servicing, and if this is true the amount of such payment should not be charged to the plant account. The prepaid service charge, however, is presumably based on the expected cost to the vendor, in the light of experience, and may be more or less than the amount of service actually received. This interpretation leads to the conclusion that even if no service is actually received by the M Co. during the specified period a part of the total apparent cost of the equipment should be written off the first year as a form of maintenance insurance. As might be expected, adjustments of this type are seldom if ever made in practice, and where the amount involved is small and based on estimate it may not be reasonable to insist on the recognition of the implied maintenance charge.

**Apportioning Maintenance Charges.** The maintenance chargeable to operations, even where all replacements of recognizable parts are treated as plant adjustments, often varies sharply from month to month, with little relation to the movement of the volume of business. In some situations repairs are heavier during dull seasons, the slackening of business making it feasible to devote more attention to upkeep. This condition is sometimes dealt with in monthly statements by spreading the yearly maintenance budget in the operating accounts either in terms of sales or physical production through the use of an "equalization" reserve.

The M Co., for example, estimates the amount of maintenance of buildings and equipment for the year, exclusive of all charges affecting plant account, at \$100,000. The sales budget for the same period is set at \$1,000,000. It is decided, accordingly, to charge monthly operations on account of maintenance with 10% of monthly sales. For January

sales total \$100,000 and maintenance costs actually incurred amount to \$8,000; for February the corresponding figures are \$75,000 and \$10,000. The summarized entries for the two months are:

January			
(1)			
Reserve for Maintenance	.	.	\$ 8,000
Supplies, Payroll, etc.	.	.	\$ 8,000
To record maintenance costs incurred			
(2)			
Operating Accounts	.	.	10,000
Reserve for Maintenance	.	.	10,000
To accrue reserve for month			
February			
(1)			
Reserve for Maintenance	.	.	10,000
Supplies, Payroll, etc.	.	.	10,000
To record maintenance costs incurred			
(2)			
Operating Accounts	.	.	7,500
Reserve for Maintenance	.	.	7,500
To accrue reserve for month			

Similar entries would be made in subsequent months. The debit or credit balance in the maintenance equalization reserve on December 31 should be closed out as an adjustment of maintenance cost for the year instead of being treated as applicable to the last month. It would be possible to carry the reserve balance forward from year to year, assuming that it does not accumulate in large amount, but if each year's budget is a distinct program it is better practice to begin each period with a clean slate.

The interpretation of the monthly reserve balances for statement purposes is of some interest. In January the maintenance accrued in terms of sales exceeds the cost incurred for maintenance materials, labor, etc., by \$2,000, and the result is a credit balance at the end of the month. Should such balance be reported as a surplus, a liability, or an offset to property value? The most reasonable way to handle the item is as a contra to assets akin to accrued depreciation. This treatment assumes that in view of the volume of January sales the amount of maintenance accrued exceeds the expenditures on this account, with a resulting decline in the amount of the plant account as a whole. Similarly the debit balance of \$500 in the reserve at the end of February can be interpreted as a prepayment of ordinary maintenance on account of the activities of later months, to be reported, therefore, as a temporary increase in assets related to the plant account.

In the manufacturing field, where maintenance charges are assignable at least in part to inventories, apportionment in terms of production is clearly preferable to apportionment in terms of sales.

**Additions.** An addition may be defined either as the acquisition of a new and entirely distinct unit of plant or as an extension of an existing facility without serious reconstruction or alteration. Thus a new building is clearly an addition to property and a new wing or section likewise may be viewed as an addition. The term is particularly applicable to extensions of water mains, power lines, and similar types of property.

Additions made without in any way disturbing the status of existing units of plant are accounted for in the same manner as original acquisitions, and present no special problems of classification and valuation. Where, however, the process of making the addition brings about some change in plant units already in use care must be taken to avoid retaining values represented by elements eliminated or superseded, and the treatment of the cost of breaking up and removing old material may be in doubt. For example, if an addition is made to a factory building by removing an end wall and extending the structure it is fair to assume that the portion of the cost of the original structure applicable to the old wall should be closed out, as otherwise the total cost of the extended plant will be overstated. It is scarcely reasonable, further, to capitalize the cost of removal, as no such charge would be involved if the enlarged building were being built new as a unit. On the other hand, if it is feasible to expand facilities by securing additional space which does not open into the main plant, and to save cost an addition is built without disturbing the end wall, there is no apparent need for the elimination of a portion of the original plant cost (except as closing or changing windows or other openings may justify a minor adjustment).

Where an addition is intimately related to a main unit that is subject to retirement as a whole the service life of the addition is presumably limited to the remaining life of such unit.

Small additions, like replacement of parts, are often treated as maintenance as a matter of conservatism and convenience.

**Improvements.** An improvement may be defined technically as any alteration or structural change in a unit of plant property which results in greater durability or increased productivity or efficiency. The substitution of slate or copper roofing for wood shingles, the installation of heavier grates in a boiler, and the waterproofing of a wall are examples. The replacement of an entire unit with a more up-to-date and adequate type of asset is likewise often referred to as an improvement. From this standpoint an improvement may or may not result in an increase in

plant cost. In fact if the cost of the new element is less than the book value of that which is eliminated the net result, evidently, is a decrease in the property account.

In this connection it should be pointed out again that it is the essential function of the accounts to show costs in terms of dollars without regard to changes in efficiency and other technical conditions. If a particular unit or factor is replaced precisely in kind but at a higher cost, it is patent that the investment in plant has increased and the accounts should reflect this condition; and if the cost of the replacing element is less than that of its predecessor an adjustment downward is in order. Similarly if a technical improvement is made the effect upon the plant account is determined by a comparison of the cost incurred with the book value of the part or unit superseded, if any. That this is the only sound general approach to property accounting is so apparent that the extent of the loose thinking on the subject (on the part of accountants as well as engineers) is rather surprising. Plant accounts are being mangled every day by decisions based on nothing more substantial than the notion that a particular expenditure does not affect the property account because it does not result in improved technical condition or greater efficiency as reflected in lower operating costs or increased output. In one case the Board of Tax Appeals went so far as to hold that actual additions to mining equipment in the form of pumps and other apparatus made necessary by greater depth were not property charges because they did not make possible an increase in output above the level attained in earlier years. Any such opinion is sadly wide of the mark. If an expenditure on account of plant is intelligently made—that is, if the expenditure is necessary to make it possible to maintain a condition more satisfactory than would *otherwise* prevail, and especially where it is required to keep the concern in operation on any basis—the outlay represents a “capital” charge, although the *net* effect upon plant cost may be either an increase or decrease, depending upon the circumstances, as has been explained. The charges under consideration here do not of course include ordinary upkeep.

As in the case of other types of plant adjustments care must be taken in recording the effect of improvements to make deductions from property account for all factors eliminated. Estimating the amount to be closed out may involve difficulty, but this is no excuse for neglecting this phase of the transaction. Where detailed records of original construction are available the cost of roofing, masonry, piping, etc. removed or superseded in connection with improvements to buildings can usually be determined. In the absence of adequate construction data the current costs of similar work, adjusted to allow for changes in prices since

erection or purchase, may afford an adequate basis for estimates. If book values are based upon appraisals supported by detailed "inventories" or cost compilations, the amounts to be eliminated can be readily ascertained. Deductions arising in connection with improvements to purchased equipment are often estimated on the basis of detailed analyses of cost secured from the vendor. Careful consideration must also be given to the treatment of removal cost, salvage, and installation charges. In general, as already indicated, charges incurred in eliminating old work are not subject to capitalization.

No set rule or rules can be laid down to fit all possible situations. Each case must be analyzed on the merits, and an effort made to determine a reasonable treatment. Impracticable refinement must be avoided, but "rough-and-ready" procedures, resulting in gross errors in property accounts and operating charges, are even more objectionable. What is desired, it should be made entirely clear, is neither padding nor understatement of plant, but records that reflect approximately the conditions actually prevailing.

Where offsetting deductions are involved the ideal procedure is to charge the entire cost incurred to the proper accounts and to credit the accounts affected with the amounts representing eliminations. Cancellation of the opposing values, with a debit or credit to plant for the net amount, is always objectionable from the standpoint of proper depreciation accounting and is likely to lead to misunderstanding in other connections. On the underlying plant records, moreover, distinct entries should be made for all types of adjustments, and sometimes a number of cards or sheets can be used to advantage in dealing with a single major plant element. See discussion of property ledgers and other forms of records in the following chapter.

**Recording Improvements Illustrated.** The M Co., for example, owns an office building erected at a cost of \$60,000, including all assignable indirect charges. After a number of years of use the management decides to lay hardwood floors in certain rooms to supersede the original pine flooring. The work is done as planned, the new floor being laid on the old at a total cost, in materials, labor, and all applicable indirect charges, of \$1,000. The cost of the original flooring in the rooms affected, including an appropriate share of the original overhead costs, is estimated from the construction records to be \$500. The entries under these conditions are:

(1)

Office Building—Allowance for Depreciation . . . . .	\$ 500	
Office Building—Cost . . . . .		\$ 500
To eliminate cost of flooring superseded . . . . .		



(2)

Office Building Cost . . . . .	1,000	
Materials, Payroll, etc. . . . .		1,000
To record cost of improved flooring		

These entries assume that the depreciation allowance accrued to date of alteration includes an amount applicable to the old flooring precisely equal to its cost. Such accuracy in dealing with depreciation is not to be expected, although the treatment adopted in actual practice in dealing with minor eliminations often assumes the ideal condition. A temporary construction account might be used to receive the charges accumulated on this job, the same being closed to the building account when the work has been finished.

The fact that the old floor was not actually removed does not warrant retention of its cost on the books. At the same time a complete write-off could not be justified if the presence of the original material were responsible for a more satisfactory result or a reduction in the cost of making the improvement. If, for example, the existence of the old floor made possible the use of a thinner and less expensive new flooring, it would be reasonable to retain a portion of the cost of the old floor in plant account.

**Betterments in Utility Accounting.** In the classifications of accounts prescribed by the Interstate Commerce Commission for steam railways and other utilities under the Commission's jurisdiction the general rule laid down for the treatment of betterments which do not involve replacement of major units of property is not in accord with the principles outlined above. In substance the rule provides that only the excess cost of betterments over the current cost of replacements in kind may be capitalized. This means, for example, that if an untreated tie which cost \$1.00, and which would cost \$1.40 if purchased new at date of elimination, is replaced with a heavier and treated tie at a cost of \$2.00 the amount of the betterment which may be included in plant account is only 60 cents, and the resulting total recorded cost is only \$1.60. The net effect is an understatement in the actual cost of existing property of 40 cents. If, to vary the example, the cost of the old tie is \$1.50, the cost of replacing in kind is 75 cents, and the cost of the improved unit substituted is \$1.00, the application of the rule results in a recorded cost of \$1.75, in the face of an actual cost of only \$1.00. Such procedure violates the fundamental requirement of plant accounting—that the accounts show the approximate cost of the facilities in use. Indeed the rule results in property records which do not show the cost of either the original or the existing property. Moreover, the rule cannot be commended on the score either of conservatism or of practical simplicity.

It is not consistently conservative and it is obviously troublesome to apply.

An important consequence of the Commission's conception of betterments, likewise objectionable, is the treatment of all piecemeal replacements in kind as operating charges, regardless of the trend of prices.

Another unfortunate feature of the prescribed treatment for betterments of railway track lies in the fact that no provision is made for the recognition of increasing or decreasing costs of installation. Under the classification of plant cost employed the original cost of "laying and surfacing" is charged to a separate account, and under the rules governing piecemeal reconstruction this account remains unchanged. In other words, only material costs are considered to be factors that may require adjustment of plant.

In many systems of utility accounts the recognition of betterments is limited to jobs in which expenditures exceed a certain specified minimum. Another type of restriction limits "capital" jobs to those which meet certain physical specifications. A rule may be adopted, for example, that unless twenty or more consecutive poles are replaced under a particular work order the entire cost shall be treated as maintenance. In general all such methods of defining the conditions under which plant accounts are to be adjusted are objectionable.

**Improvements by Lessee.** Real property under lease is often improved by the lessee through the construction of roads, erection of buildings, sinking of shafts, etc., and the agreement usually provides that no improvements can be removed by the tenant when the property reverts. In this situation the lessee should charge the cost of the improvements to a special account to distinguish such assets from any plant items which are owned outright, and the amount should be amortized over the remaining term of the lease or the estimated useful life of the improvements, whichever is the shorter.

Under the usual legal interpretation the title to improvements to buildings and other fixed structures made by the tenant resides with the lessor (assuming that he is the owner in fee), and it may accordingly be argued that the value of such improvements should be reflected immediately on the owner's books as a form of special rental earned on the lease. In dealing with this troublesome question for income-tax purposes one of the options the Internal Revenue Code formerly gave to the owner was that of reporting the fair market value of the improvements, subject to the lease, as income at the time the improvements are made. This procedure is of sufficient interest to deserve special attention.

The M Co., for example, leases a tract of land to the R Co. for a period of twenty years. The lessee agrees, as part of the consideration,

to erect on the property a building of a specified type which is not subject to removal. The building is completed at the end of the first year at an actual cost of \$50,000.00. Its estimated life is twenty-five years, and it is assumed that there will be no net salvage value. The present value subject to the lease is assumed for convenience to be the estimated straight-line depreciated value at the end of the lease, \$12,000.00, discounted at a rate of 6% per annum for nineteen years, or \$3,966.16. Accepting the view that this present value represents immediate income to the owner, the entries on the M Co.'s books when the improvements are completed may be made as follows:

Improvements on Leased Land—Estimated Value at End of Lease . . . . .	\$12,000.00	
Lease Income . . . . .		\$3,966.16
Improvements on Leased Land—Discount . . . . .		8,033.84

If this initial treatment is sound it would seem to follow that the periodic increase in the value of the improvements to the owner as the date of reversion approaches should be accrued on the M Co.'s books. This would be accomplished by charging the offsetting discount account and crediting the lease-income account with the amount of the discount accumulation each year. The first annual accumulation, using the 6% rate, is \$237.97 (6% of \$3,966.16, or the difference between the present value of \$12,000.00 available in eighteen years and the original estimated value), and the entries are:

Improvements on Leased Land—Discount . . . . .	\$237.97	
Lease Income . . . . .		\$237.97

If this process is continued the discount will be entirely extinguished when the M Co. comes into possession of the property. At this point the improvements balance of \$12,000.00 should be transferred to an account with a more appropriate title. Assuming that the original estimate is still considered valid, this balance of \$12,000.00 represents the amount subject to depreciation during the remaining life of the building.

Although the second stage of the procedure outlined above grows out of a practice formerly permitted the owner for income-tax purposes, it appears that the implicit discount accumulation of \$8,033.84 would not have been construed as taxable income by the Bureau of Internal Revenue. Instead the M Co. would have been expected—if electing the option under consideration—to report as income only the amount of \$3,966.16 (assuming this figure is accepted as a sound estimate) and the amount of the allowable deductions for depreciation to the M Co., during the life of the property following the termination of the lease, would presumably have been limited to this same figure.

The procedure outlined, or any similar treatment, is objectionable in

that it tends to require the recognition of income which can not be dependably determined and which is entirely unavailable. Abstract legal title to the lessee's improvements may reside in the owner but possession and use are completely in the hands of the tenant during the life of the lease. The sensible procedure, under these circumstances, is to make no entries whatever on the owner's books (excepting, perhaps, appropriate memoranda) until the property reverts. At that point the fair market value of any remaining improvements erected by the lessee, net of any special damage to original property which has not been previously recognized, should be set up as an asset, and should be written off during the remaining service life as estimated from the point of view of the owner. Even here it imposes something of a hardship to treat such fair market value as taxable income, as no disposable funds are involved. From a tax standpoint perhaps the most expedient way of dealing with the matter would be to consider no income to have been realized, at any stage prior to final disposition, and to refuse to permit any deduction by the owner to cover the depreciation of improvements erected by the tenant or to give such property a basis in the event of sale or other disposition.

In any event the burden of proof should be on the one attempting to demonstrate that improvements by a lessee have any fair market value to the owner "subject to the lease." Where the lease has but a few years to run, and the improvements are clearly suited to the needs of the owner, the present worth of the estimated value of the improvements when the property reverts may be substantial. Where, on the other hand, the entire use of the property is in the hands of the tenant for a long period the worth to the owner at the outset is highly speculative and recognition may well be postponed till date of reversion.

**Reconstruction and Alteration.** Major programs of rebuilding and alteration, like replacement of parts and specific improvements, should be dealt with in such manner that the resulting plant account fairly reflects the cost of the property in its revised form. Where the reconstruction of a major unit or section is complete it is advisable to view the transaction substantially as a full replacement. Under this approach the book value of the old unit or units is closed out, an allowance is made for elements to be incorporated in the rebuilt structure, and the appropriate plant accounts are charged with the cost of the new work plus the allowance. Where the job is confined to extensive alterations, falling short of rebuilding, the emphasis is placed on the calculation of superseded parts and elements and the isolation of the costs subject to capitalization, and the recorded values are in large measure retained. Especial care must be taken in handling reconstruction jobs to avoid overstatement.

Removal costs are often substantial and should not be confused with capital charges. If the costs incurred in construction are abnormally high owing to the special conditions under which rebuilding must be undertaken, it may not be reasonable to charge the entire outlay to plant account. In rebuilding a street railway line, for example, it may be necessary to construct a stretch of temporary track in order to handle traffic while the work is being done, and no part of the cost of such track, it is usually held, is assignable to the final result. The fair cost value of the converted property as a whole must not be lost sight of. The rebuilt unit or units of plant may not represent the ideal layout from an operating standpoint, although sufficiently satisfactory to justify the expenditure. As a rule the maximum value which can be attached to a completely revamped building or assembly of equipment is the cost new of similar assets particularly suited to the needs of the business.

Special costs of remodeling and rearranging should in some cases be given a service life much shorter than that of the main unit involved. In the case of a rented building, for example, alteration costs may be incurred in adapting the structure to the needs of successive tenants, and if all such charges are capitalized in terms of the expected life of the property as a whole the result will be an increasing overstatement of building cost. The proper treatment is to charge the cost of each set of alterations to a subsidiary building account which is subject to amortization during the lease of the tenant for whose benefit the charge was incurred.

If charges for depreciation in the periods preceding rebuilding or alteration have been large enough to cover removal costs, and all other charges incurred in such work other than those representing actual additions to property, it is proper to charge such costs to the allowance or reserve which has been accrued.

**Treatment of Reconstruction Illustrated.** The general-ledger treatment of a rebuilding job can be indicated by a simple example. A utility company converts an old power house into a paint and carpenter shop. The cost of the old building is \$50,000; the accrued depreciation on the books to date of rebuilding amounts to \$10,000; the total amount expended to convert the property is \$40,000, of which it is estimated that \$5,000 represents cost of removing old work and other charges which would not have been required on an ordinary construction job; the estimated original cost of elements of the old structure completely eliminated or superseded is \$12,000; the accrued depreciation applicable to the converted building in view of the status of the elements of the old structure retained is set at \$8,000. It is assumed to be necessary to close the old building account and applicable depreciation allowance in view of the

new use to which the converted building is to be put. The following are summarized entries:

(1)		
Construction Account . . . . .	\$40,000	
Cash (or equivalent) . . . . .		\$40,000
To charge cost incurred in conversion to temporary construction account		
(2)		
Removal and Special Conversion Costs . . . . .	5,000	
Shop Buildings—Cost . . . . .	35,000	
Construction Account . . . . .		40,000
To close construction account		
(3)		
Power Houses—Allowance for Depreciation . . . . .	10,000	
Loss on Conversion of Buildings . . . . .	2,000	
Power Houses—Cost . . . . .		12,000
To charge off estimated cost of elements superseded or eliminated		
(4)		
Shop Buildings—Cost . . . . .	38,000	
Power Houses—Cost . . . . .		38,000
To close balance of cost of power house to shop buildings		
(5)		
Loss on Conversion of Buildings . . . . .	8,000	
Shop Buildings—Allowance for Depreciation . . . . .		8,000
To accrue depreciation on converted structure		

The resulting book cost of the converted building is \$73,000, of which \$35,000 is made up of costs incurred in rebuilding and \$38,000 represents the portion of the cost of the power house which is deemed to be applicable to the new structure. The net book value is \$65,000 (\$73,000 less depreciation allowance of \$8,000). It would not be unreasonable to show the cost of the rebuilt structure at the net amount of \$65,000, particularly since a new estimate of service life and an appropriate rate of depreciation are required. All elements of the converted building, that is, will presumably be retired together at some future date, and hence the retention of an allowance based upon consideration of the secondhand elements only is likely to be somewhat confusing. It is evident that the depreciation allowance accrued in the past falls by \$10,000 to cover the depreciation actually accrued according to the estimates at date of conversion, to say nothing of the removal and special conversion costs of \$5,000. The total book loss of \$15,000 which is recognized should presumably be reported as a nonoperating item.

Suppose that a new shop building of the same capacity and equally or better suited to the company's needs can be erected for \$60,000. In the face of this condition a net book value of \$65,000 for the converted building seems to be excessive, especially in view of the fact that a new building would presumably have a longer life and lower maintenance cost than

the rebuilt structure. Assuming a service life of fifty years for a new building, and a life of forty years for the seminew, and ignoring comparative maintenance charges and other complications, a conservatively estimated cost value for the converted property may be set at four-fifths of \$60,000, or \$48,000, a figure only \$8,000 in excess of the amount expended to convert the property. A shift to this basis amounts to treating the reconstruction as a retirement of the old plant, with a recognition of recovered parts at estimated market value. Such a valuation is subject to the objection, by no means conclusive, that it ignores entirely the facts as to the unabsorbed cost of the original building, the power house, and hence savors of an unwarranted revaluation of existing plant.

**Rehabilitation.** The cost of restoring or improving buildings or equipment acquired in a run-down condition is often referred to as "rehabilitation." In general such cost is subject to capitalization as a clear-cut element of plant investment if the condition of the property was known at time of purchase (and hence was presumably reflected in the price paid) and the work of restoration is undertaken, as contemplated, soon after acquisition. Costs of removing and demolishing old structures under these circumstances should also be charged to asset accounts, with adjustment for salvage recovered. Care must be taken to distinguish genuine rehabilitation charges from ordinary maintenance costs which may be incurred at about the same time, and in dealing with large aggregates of property it is not always easy to draw the line. In some cases it may be necessary to approximate the amount of expenditures deserving capitalization by comparing the total of maintenance and restoration costs incurred with the estimated normal upkeep.

No support can be given to any attempt to justify the capitalization of costs of overhauling and rebuilding incurred long after acquisition, and brought about by unforeseen conditions, by applying the conception of rehabilitation. Where, however, a property is purchased in a seriously depreciated and impaired condition, expenditures for rehabilitation may be spread over a number of years. In considering the effect of a particular restoration cost the question to be asked is: does this expenditure raise the property to a higher level of condition and value than obtained at the date of purchase? If an affirmative answer is justified the outlay is subject to inclusion in plant account, at least in part.

A company, for example, buys a run-down office building at a cost of \$20,000, and immediately leases the property for a period of three years. Only minor repairs are made during the term of the lease, but depreciation is accrued in the amount of \$3,000. At the time the property reverts it is thoroughly overhauled and repaired at a cost of \$7,500. The cost of elements eliminated or superseded is estimated at \$1,500. Re-

removal costs, included in the total given, amount to \$500, and recovered materials are sold for cash, \$100. Assuming that the accrued depreciation is precisely the proper amount, including provision for net removal cost, the following entries are needed:

(1)		
Office Building—Allowance for Depreciation . . . . .	\$1,500	
Office Building—Cost . . . . .		\$1,500
To record elements eliminated		

(2)		
Cash (or, first, materials recovered) . . . . .	100	
Office Building—Allowance for Depreciation . . . . .	400	
Office Building—Cost . . . . .	7,000	
Cash (or equivalent) . . . . .		7,500
To summarize rehabilitation expenditures including removal charges		

According to these entries the net book value of the property, originally only \$20,000, has been increased to \$24,400 (\$25,500 less \$1,100, the balance in the depreciation allowance) as a result of rehabilitation undertaken three years after purchase.

Difficult questions of interpretation and classification may arise where an extensive depreciated property is purchased for a lump-sum figure. A particular company, for example, acquires a street railway system at a cost of \$10,000,000. Many of the lines are in poor condition and unprofitable, much of the equipment is out of date, and some of the buildings are not in good repair. For three years from date of purchase the company spends \$1,000,000 per year, in addition to ordinary maintenance, to restore the property, and during this period several unsatisfactory lines are completely eliminated, and a large number of cars are scrapped. Proper plant accounting in this situation depends in part upon a sound classification of purchase price and rehabilitation costs. Statements of condition prepared by the engineers may be helpful, but do not always reflect the true economic and business situation. Properties marked for early abandonment should be given no value in excess of net salvage plus an allowance for use from date of purchase to retirement. Units much depreciated should absorb a small portion of the purchase price and a relatively large slice of rehabilitation. Preliminary allocations may require revision as true relationships are disclosed. If the purchase can be assumed to be intelligently made the entire price paid must be considered to inhere in the property acquired. This means that if it becomes clear that in the initial inventory certain elements or units were permitted to absorb too large an amount of cost other elements or units of plant (assuming no intangibles or other classes of assets are involved) were understated. This view, however, must not be pushed to a point which denies the possibility of loss arising after the property



was acquired as a result of unfavorable conditions. Depreciation during the period of restoration must of course be taken into account.

### QUESTIONS

1. Plant assets may be divided into what two main groups? Name several examples of each type.

2. In ascertaining plant cost how should each of the following be dealt with: freight, installation charges, excavation, insurance during construction, discounts on materials, depreciation during construction, removal costs, returned materials, injuries and damages, interest on proprietary capital invested?

3. Discuss the classification of plant cost in the accounts. How should the cost of land included in the lump-sum price of improved real estate be segregated? Why is it especially important that land cost be segregated?

4. "The plant as a whole suffers no depreciation during a normal construction period, but particular units are subject to depreciation in such period." Explain, using an illustration.

5. Define maintenance. Under what circumstances may the cost of plant be affected by maintenance projects?

6. Ideally, how should piecemeal renewals of assets such as telephone poles and railway ties be handled? Explain fully, outlining the required procedure. How may the cost of equipment be affected by "free" repairs and servicing furnished by the vendor?

7. Illustrate the apportionment of maintenance through an "equalization" reserve. Is this procedure sound? How should monthly balances in the reserve be interpreted?

8. Discuss the accounting for additions.

9. What is meant by an improvement? Illustrate. Does an improvement in the technical sense invariably mean an increase in the cost of plant in use? Explain fully.

10. "The expenditures for additional equipment required by mining at lower levels do not increase the output and therefore should not be capitalized." Do you agree? Explain.

11. Criticize the prescribed rule governing the treatment of track betterments in the railway field. Use illustrative figures.

12. With an illustration present a scheme of accounting on the owner's books for improvements made by a lessee.

13. Outline a sound treatment for major reconstruction jobs. How are eliminations to be estimated? What general check may be applied to guard against overstatement of the cost of property?

14. Define rehabilitation, and indicate the proper treatment for rehabilitation charges.

## X

### PLANT ACCOUNTS—Continued

**Replacements.** A replacement in the usual sense occurs when one or more distinct plant units are acquired to replace one or more old units which are being completely retired from service. The new property may be of precisely the same type and capacity for service as that superseded, but more often it differs either in physical character or in productivity. This means that either an improvement or a reduction in plant capacity may result. Even in the event of a replacement strictly in kind, moreover, the cost of the new unit is not likely to be the same as that of the old.

A replacement is a combination of two distinct steps or transactions: (1) the elimination of the old unit; (2) the acquisition of the new. In practice this important point is sometimes neglected in the form of entries adopted; the replacement is treated as a single transaction by charging the purchase price of the new unit and the other charges incurred directly to the allowance for accrued depreciation. Even for replacements in kind this procedure is most objectionable. Such treatment ignores the difference between the cost of the new unit and that of the property retired, often a substantial amount, with resulting misstatement of both cost and accrued depreciation. It also leads to careless handling of removal charges and salvage. The only sound procedure is that which recognizes the retirement involved as a distinct transaction, to be recorded without regard to the cost of the succeeding property. Under this interpretation all plant costs incurred are passed through the asset accounts in a systematic manner, and the cost of the property in service or available can be readily determined at all times. On the clerical side, moreover, the separation of the two phases of a replacement is desirable. Removal of the old unit and installation of the new may not occur simultaneously. The new unit may be purchased and actually placed in service, or in readiness to serve, before the property marked for retirement is disconnected and thrown out of use, and the underlying vouchers and other papers originating in connection with the purchase are likely to be quite distinct from the authorization to retire and records of disposition.

The problem of distinguishing between outright replacement and renewal of parts as maintenance has been referred to in the preceding chapter. When the property in question is a separate major unit such as a building, car, or factory machine, it is usually not difficult to draw the line. In the case of continuous structures such as railway track, power lines, water mains, etc., where replacement largely takes the form of piecemeal renewal and rebuilding, the following of the cost of plant presents special difficulties. Careful separation of particular purchases or jobs into maintenance projects and capital undertakings is helpful, but it may still be desirable to make a careful periodic analysis of both classes of orders for the purpose of isolating charges and credits assignable to plant account.

**Replacement Entries.** The M Co. acquires a unit of equipment as of January 1, 1932, at a cost of \$4,000, including all assignable transportation and installation charges. During the next ten years renewals of major parts and other adjustments result in increasing the total net cost of the unit to the amount of \$4,300. On December 31, 1941, the applicable accrued depreciation totals \$3,900. At this point the unit is replaced by new equipment of similar type at a total cost, installed, of \$5,000. Cost of removing and dismantling totals \$100; parts are recovered and placed in stores with an estimated value of \$175; cash is received for junk, \$50. The following entries outline the accounting:

(1)		
Equipment—Allowance for Depreciation . . . . .	\$3,900	
Retirement Suspense . . . . .	400	
Equipment—Cost . . . . .		\$4,300
To close cost and applicable depreciation of unit retired, the difference being charged to a temporary clearing account		

(2)		
Retirement Suspense . . . . .	100	
Cash (or equivalent) . . . . .		100
To record cost of removing and dismantling		

(3)		
Cash . . . . .	50	
Stores Ledger . . . . .	175	
Retirement Suspense . . . . .		225
To record cash received for junk and estimated value of parts recovered		

(4)		
Equipment—Cost . . . . .	5,000	
Cash (or equivalent) . . . . .		5,000
To record net invoice cost of new equipment and other applicable charges		

(5)		
Retirement Loss . . . . .	275	
Retirement Suspense . . . . .		275
To close balance of suspense account to special loss account		

**Removal Cost and Salvage.** The view has been accepted here that all costs arising in the process of eliminating a unit of plant should be treated as an expense or loss as incurred, except to the extent that such charges have been previously estimated and accrued through the depreciation reserve or some other account. This is the position adopted in income-tax administration and utility regulation, and is generally endorsed by accountants. The removal cost attaching to each generation of plant is chargeable to the revenues realized during the life of such plant. Proposals to capitalize removal charges, occasionally encountered, are objectionable. If the cost of eliminating the old unit were treated as a part of the cost of the incoming unit of property in each case, the operations of the original layout, which is greeted with no such charge, would be permitted to escape this burden.

The value of materials recovered on the occasion of retirement from service, and the amount if any received from the sale of retired property as salvage or otherwise, is often applied to removal cost, to obtain a net debit or credit—"net salvage"—which is in turn incorporated in retirement profit or loss. (See illustration above.) Where the amounts are large a separate reporting of each element involved in the net adjustment is advisable. In general the practice of crediting recovered values to the depreciation reserve should not be encouraged as a matter of procedure, although the net effect may not be improper. The precise interpretation and treatment of salvage value hinge in some measure upon the depreciation policy, as will be explained in a later chapter.

Salvaged materials placed in stores should be valued either in terms of original cost or current cost, with adequate adjustment in view of their secondhand character. The current basis is on the whole the more acceptable although it may be criticized as involving revaluation and indirect recognition of profit or loss not realized by actual sale or other final disposition. Where so-called salvage runs high, as in retirements arising in relocation work and transfers of stations in the telephone business, the basis of valuation used in charging materials and equipment to stores has a considerable bearing upon plant cost and depreciation policy.

Where the retired unit is "traded in" as a part payment on the purchase price of the new unit the "salvage" consists of the allowance made by the vendor. A complication here lies in the fact that the stated amount of the allowance often exceeds fair cash value. Where this is the case it is necessary to substitute estimated values for nominal proceeds in order to secure a correct accounting for the retirement and avoid an overstatement of the cost of the new asset.

**Recording Exchanges.** An example will serve to emphasize the proper treatment for the trade-in. The M Co. buys a standard delivery truck at a cost of \$1,800. After operating the truck for two years the Company decides that a somewhat heavier kind of equipment, with greater carrying capacity, is needed. A new truck of the desired type is accordingly ordered from the local distributor, the R Motor Sales Co. The regular price of the new truck, delivered, is \$2,200. The distributor agrees to allow \$700 for the old unit on the purchase price of the new. The transaction is carried through on this basis, and deliveries are made on the same day. At this time the depreciation accrued on the old truck totals \$1,200. If sold for cash locally to a dealer in secondhand cars the old truck would bring about \$500, cash. With these conditions there are three possible bases for determining the proceeds of the old truck: (1) the nominal allowed price; (2) the net book value of the old truck; (3) the approximate cash value. If the first basis is accepted the transaction results in a special profit of \$100; if the second is used the transaction is handled as a pure exchange, with no accompanying profit or loss; if the cash value is adopted a retirement loss of \$100 emerges. The proper treatment, it is hardly necessary to say, is that which recognizes proceeds or salvage of \$500. The cost of the new truck is then the sum of the cash paid, \$1,500, and the cash value of the old unit. The condensed entries are:

(1)			
Delivery Trucks—Cost . . . . .	\$2,000		
R Motor Sales Co. . . . .		\$2,000	
To record purchase of new truck at net price (details)			
(2)			
R Motor Sales Co. . . . .	500		
Delivery Trucks—Allowance for Depreciation . . . . .	1,200		
Retirement Loss . . . . .	100		
Delivery Trucks—Cost . . . . .			1,800
To record disposition of old truck			

It would of course be possible to set up the nominal cost of \$2,200 and then adjust to the cash basis by crediting the provisional charge with \$200, the amount of the discount implicitly allowed.

For income-tax purposes the Bureau of Internal Revenue has adopted the position that neither gain nor loss is recognizable upon a replacement involving a trade-in, and that the basis of the new unit in any subsequent computation is the sum of the net book value of the retired unit (assuming depreciation has been accrued in an acceptable manner) and the amount of cash paid or liability assumed. This is unfortunate, as it tends to discourage proper accounting for exchanges. When a unit is retired from service the full amount of its cost should be eliminated from the accounts; when a new unit is acquired the full amount of its cost, on

a cash basis, should be recorded. And the fact that the old asset is used directly as part of the consideration paid for the new, instead of being sold for cash, does not make this rule any the less applicable.

To the extent that depreciation has not been properly accrued on the property eliminated through exchange or otherwise the amount of profit or loss computed is basically an adjustment of past income measurement. (A portion of the special profit or loss may be viewed as an adjustment of depreciation for the current period.)

Occasionally exchanges of fixed assets occur in connection with the realignment of the operating activities of affiliated companies and in other special circumstances. In all such cases the accounting for the transaction should follow the general procedure outlined for the trade-in.

**Retirements.** A retirement represents the elimination of one or more units of plant from actual or potential service. The term may also be applied to the elimination of particular elements or parts in connection with maintenance, improvement, and reconstruction. An asset may be retired as a result of ordinary wear and tear which has progressed so far that retention of the asset in service is unsafe or uneconomical. Retirement may be premature because of accidents, obsolescence, and other special conditions. Whatever the cause or occasion for the retirement the accounting should follow the same pattern. The cost or other book value of the property in question should be closed out, the depreciation allowance should be charged for the amount of applicable accrued depreciation, and removal cost and salvage value should be appropriately recognized.

As explained above retirements in a going concern are often accompanied by the acquisition of new assets which more or less specifically replace the property eliminated. In many cases, however, retired plant is either never renewed in any form or is replaced by entirely different facilities not acquired concurrently and perhaps employed in other locations. Such final retirements result primarily from: (1) sale of a particular plant or class of property; (2) cessation or curtailment of operations in one or more locations; (3) radical changes in technical methods. A concern, for example, may dispose of the assets represented by a particular department or branch of business from which the management decides to withdraw because of unprofitable operation, lack of connection with main activities, or for any other reason. Assets may also be abandoned and permanently thrown out of use, without sale, as a result of shutting down individual units or plants. Such retirements are especially characteristic of mining, oil production, and other extractive lines. Sweeping changes in production technique often bring about complete and final retirement of particular units and types of assets, although in this situa-

tion retirements are usually accompanied by the acquisition of new structures and equipment.

That a retirement may be recognized without the wrecking or junking of an asset, or other form of physical disposition, needs to be emphasized, as one of the most common weaknesses in property accounting arises at this point. A railway company, for example, may have hundreds of cars standing on sidings which are entirely out of use and presumably will never again be placed in service but which are still carried in the accounts. Such neglect to book retirements is unjustified. If a unit of property has ceased to function, and restoration to use is very unlikely even though possible, the unit is a bad asset and like a bad debt should be written off. It is not even necessary that it be moved or in any way physically disturbed. It often happens, when space is not at a premium, that structures are left standing for years, with no serious prospect of ever being used, to avoid the trouble and expense of dismantling and removing, but this does not mean that they should remain in the plant account as "live" assets. Occasionally units of equipment that are entirely obsolete and not connected or available for service are left on their foundations for a considerable period in a plant which is being continued in operation, but again the units are in effect retired and should be so treated in the accounts. The fact that no work order to remove or demolish has been issued does not justify—although it may explain—failure to record retirement. Periodic inventory or inspection should be a feature of plant procedure, and one result of such inspection should be the issue of instructions to eliminate from the accounts all elements of plant that have permanently ceased to function. Even if the property in question is fully depreciated, and hence has no net book value, it is not good accounting to permit the cost and accrued depreciation applicable to remain on the books. Failure to retire results in an overstated plant cost, and may lead to errors in subsequent depreciation calculations.

Where an asset permanently out of use has a substantial net salvage value, on the other hand, the retirement entries should recognize this value. One method consists of writing the plant down to the estimated recoverable amount, without change in classification. A better procedure is to charge a special account with the salvage value of property implicitly retired from both active and standby service. If there is a net recoverable value, it may be added, it is poor management to postpone actual disposition for any considerable time.

The tendency of the tax assessor to include all visible improvements on his rolls, regardless of their economic significance, has had a con-

siderable effect in encouraging business managements to raze structures that have ceased to function.

**Retirement Losses.** The treatment of unusual retirement losses has been long debated, particularly in connection with utility regulation. It is generally agreed that minor book losses incidental to ordinary retirements should be either absorbed in operating expenses or charged against net profits, current or accumulated. Persistent support is found, however, for the doctrine that the undepreciated book values of plant units prematurely retired as a result of obsolescence and other special factors should be segregated as deferred charges, subject to amortization against revenues of succeeding years, or should be capitalized definitely as part of the cost of the superseding property. Such doctrine has always been popular among managements hard pressed in their efforts to "show a profit." It has also received some authoritative support from the rule which permits steam railways, with the explicit consent of the Interstate Commerce Commission, to charge losses representing plant "abandoned directly in connection with improvement or betterment work . . . the inclusion of which in the carrier's accounts for a single year would seriously distort the accounts" to a special asset account, "property abandoned chargeable to operating expenses." From the side of price determination and valuation an attempt is often made to bolster the case for deferring loss by arguing that premature retirements are made only under conditions in which the management can expect to charge prices that will permit recovery of all development costs incurred, including undepreciated values of fixed assets whose retirement was made advisable by the introduction of new methods.

Notwithstanding its plausibility under some conditions the theory that major retirement losses should be capitalized is not acceptable. Reluctance to recognize losses on the part of those responsible for earning power is understandable, but does not afford a proper basis for accounting. The accounts are supposedly concerned with facts, not hopes and desires. It is unfortunate if expiring capital values have not been accrued through the period of use, but the matter is not remedied by overstating expenses and understating the profits of subsequent periods. The typical concern, moreover, is in no position to take action which will assure recovery of losses. The management is forced to face the competition of newcomers in the field who are able to use the latest methods without undergoing the losses incident to their development, and is doing nothing but confusing itself by loading unabsorbed plant costs, derived from facilities no longer in use, into its operating charges. The possibility of loss through technical change is of course one of the factors which justi-



fies the prospect of profits. But if the particular producer fails to recover his investment during the life of the particular generation of assets, together with a profit, he obtains no special leverage on the future which will assure him of recouping either capital or lost profit. It may also be pointed out that if an enterprise were in a position to charge what it pleased for its product it would not need the excuse of retirement losses to take full advantage of the situation.

As indicated above, a large retirement loss need not be construed as a current operating charge. The ideal treatment is to divide the item into the portion applicable to income in the period of retirement—based, presumably on the fraction of the entire service life embraced in the current period—and the portion assignable to earlier periods. The use of a special loss account in the process is always desirable. It should be added that the fact that a part or all of a retirement loss may be viewed as a deduction from surplus does not warrant exclusion of the item from the general income statement.

**Insurance Adjustments.** When an insured unit of property is damaged or destroyed the accounts must be adjusted and a settlement effected with the insurance company. According to the conditions of the standard policy the maximum amount recoverable is the cash value of the property, or what it would cost to repair or replace it, allowance being made for age and condition at the date of loss. The policy may also include a coinsurance clause or other special feature restricting the amount collectible. Provision for arbitration is usually provided to settle the amount of loss and the insurer's liability where the insurance adjuster and the insured cannot reach an agreement. In no event, of course, will the amount collected exceed the total of the insurance carried. Where two or more policies written by different companies apply to the property the recoverable loss is apportioned in terms of the relative amounts of the policies. In the typical situation it is not to be expected that the proceeds of an insurance settlement will coincide with either the gross or net book value of the property.

The M Co., for example, has a building which cost \$100,000 and has a net book value of \$75,000. The fire insurance carried, all with the R Insurance Co., totals \$80,000. At this point the building is destroyed by fire. The cash value of the structure at the date of the fire, after some negotiation, is set at \$88,000. It is agreed that there is no net salvage value. In fact it is estimated that it would cost \$1,000 to clear the site of debris. The insurer accepts a liability of the full amount of the policy and elects to pay cash rather than replace the property. A check for the full amount of the policy, \$80,000, is received. The following entries are in order:

(1)		
Building—Allowance for Depreciation . . . . .	\$25,000	
Building Insurance Suspense . . . . .	75,000	
Building—Cost . . . . .		\$100,000
To close out building account and applicable depreciation, the amount of net book value being charged to suspense pending insurance settlement		

(2)		
R Insurance Co. . . . .	80,000	
Building Insurance Suspense . . . . .		75,000
Profit on Insurance Adjustment . . . . .		5,000
To charge insurance company per settlement agreed upon and recognize resulting book profit		

(3)		
Cash . . . . .	80,000	
R Insurance Co. . . . .		80,000
To record receipt of check		

The fact that a profit emerges from a fire loss might seem to imply that the casualty was a fortunate occurrence. The existence of the profit, however, does not demonstrate that the M Co. actually benefited as a result of the fire. If the appraised cash value is accepted as sound evidence of value in use to the owner the destruction of the building caused a direct loss of \$8,000 without including removal cost, to say nothing of the resulting delay and inconvenience. The profit of \$5,000 grows out of the entire history of the building account and may reflect a partial realization of an increasing cost of construction, a recovery of excessive depreciation charges, or a combination of these influences.

The suspense charge used in the illustration may be interpreted as a form of receivable which is somewhat indeterminate in amount. Under the conditions given the entire charge is found to be a good asset.

To vary the example assume that the M Co.'s building is only damaged by the fire, and that the insured estimates the amount of the damage at \$12,000. The insurer elects to repair the property rather than pay cash. The work is done by an outside contractor at a cost of \$10,000, and the M Co. accepts the work as satisfying the obligation of the insurer in full. If it is decided that the repairs made restore the precise status existing before the fire—rather unlikely in view of the fact that the materials used are presumably new and that, on the other hand, it is usually not possible to remedy all damage done by fire—the convenient treatment is to credit the building account and charge the insurance company with the estimated amount of recoverable loss when the damage occurs, \$12,000, and return the same amount to the plant account when the work of restoration is complete. A more refined treatment would consist of handling the transaction as a reconstruction job, with the funds provided by the insurer. On this basis the estimated book value of elements superseded would be credited to building account, with appropriate ad-

justment of depreciation allowance, and the amount expended for the Company, \$10,000, less the cost of removal, would be subject to capitalization. The application of such an analysis would presumably give rise to an item of book profit or loss. In any event the work of restoration might change the condition of the structure sufficiently to justify a modification of the depreciation rate applied.

**Involuntary Conversion.** In connection with income-tax administration no element of loss or gain is considered to arise through transactions in which the entire proceeds of property destroyed by casualty, taken through condemnation proceedings, or otherwise involuntarily converted are invested in similar property. Where less than the entire amount received is so expended the regulations provide that any gain realized is taxable to an amount not in excess of the proceeds not reinvested. In either type of situation the recognizable value of the property converted (usually cost less depreciation), less the amount of funds received not used to acquire similar property, increased by the amount of taxable gain or decreased by the amount of any deductible loss, becomes the basis of the new property for further reckoning. This rule, it should be understood, does not preclude absorbing in the value basis of the property acquired the amount of any funds not originating in the conversion which may be invested.

A building of the M Co., for example, with a cost of \$50,000 and a net book value of \$40,000, is totally destroyed by fire, and the Company collects insurance in the amount of \$45,000. This entire amount is then used in erecting a similar building. Evidently a book gain of \$5,000 is realized on the transaction. From a tax standpoint, however, there is no gain and the new building represents an investment of only \$40,000. To disclose the profit realized and also indicate the tax basis under these circumstances the following entries might be used:

(1)			
Building—Allowance for Depreciation . . . . .	\$10,000		
Cash . . . . .	45,000		
Building—Cost . . . . .		\$50,000	
Profit on Insurance Adjustment . . . . .		5,000	
To close out book values applicable to building burned and recognize insurance proceeds and resulting profit			

(2)			
Building—Cost . . . . .	45,000		
Cash . . . . .		45,000	
To record cost of new structure			

(3)			
Building—Cost (Excluded from Tax Basis) . . . . .	5,000		
Building—Cost . . . . .		5,000	
To assign to special account portion of building cost representing nontaxable profit from involuntary conversion			

Another possible treatment would be to segregate in a special surplus account, throughout the life of the new building, the amount of tax-free profit.

If conditions were as above except that only \$35,000 of insurance money was expended for a new building the entire gain realized, being less than the funds not reinvested, would be taxable and the value basis of the new structure for tax purposes would be its cost, \$35,000 (the net book value of the old, \$40,000, less the amount of insurance money not invested, \$10,000, plus the taxable gain, \$5,000). If conditions were the same except that the cost of the new building was \$42,000, the taxable gain would be restricted to \$3,000, the amount of money not reinvested, and the tax basis would be \$40,000 (\$40,000, less \$3,000, plus \$3,000), the same as the net book value of the building destroyed.

The treatment of involuntary conversion from a tax standpoint is a highly technical matter, and the discussion here is intended merely to call attention to the phenomenon and outline the general scheme adopted by the government in dealing with it. The idea seems to be that since the taxpayer is not responsible for the conversion the transaction should not be considered closed for tax purposes.

**Depreciation and Valuation.** All types of plant assets—as plant is defined here—are subject to depreciation due to use and impinging business conditions. Indeed the most important accounting problem associated with such assets is the measuring and recording of accrued depreciation. In dealing with plant accounts in this and the preceding chapter, however, a sound depreciation policy has been taken for granted. In succeeding chapters this subject receives special attention.

Immediate market value is relatively unimportant in the case of plant assets. For highly specialized structures and equipment the amount realizable in cash if the property is disposed of by individual units is often little more than the net break-up or salvage value. A heavy factory machine attached to a specific location, for example, has little value except as potential service in the particular setting; in most cases it is not feasible to move the unit from one plant or enterprise to another. Movable equipment such as vehicles, furniture, office calculators, etc., of standard types, can be disposed of to better advantage, but here too secondhand cash value is likely to be somewhat less than book value—cost less accrued depreciation based on full service life. Buildings in favorable locations and with a number of uses have a substantial sale value, assuming time may be taken to negotiate a satisfactory deal. The point to be emphasized here is that actual cost less reasonable depreciation to date is generally a better indication of value in use to the “going

concern" than of market value in the sense of estimated amount realizable through immediate liquidation.

Plant assets are also subject to changes in value as reflected by changing purchase and construction costs and fluctuations in the value of money itself, and there has been much discussion of the technique of plant valuation, and its legal and economic effects, among engineers, accountants, and other interested groups. Attention is given to this special topic in Chapters XIV and XV.

**Special Types of Equipment.** Questions of proper accounting for such factors as maintenance, improvement, and reconstruction are particularly important in connection with buildings and machine units but are less pertinent in relation to the smaller items of equipment—hand tools, containers, furnishings, patterns, etc. Small tools, for example, are often included in materials and supplies until issued and are then charged directly to operation. Under another practice the "normal" stock of tools is recognized as a fixed asset, and all purchases for replacement are treated as operating charges. Both of these schemes are objectionable, as they do not result in a correct statement of the cost of tools actually in use and on hand. A better practice is to charge all acquisitions to the asset account and write off retirements as determined by periodic inventory. And it is not very difficult to go a step further and accrue depreciation systematically and charge retirements to the allowance account. Under this procedure it is expedient to calculate depreciation by classes of tools rather than in terms of the individual units, and in retiring a particular unit or group of units it is convenient to assume that precisely the proper amount of depreciation has been accrued. The reasonableness of the depreciation rates employed may then be tested from time to time by special analyses.

As a result of changing methods and styles of product assets such as lasts, molds, patterns, and the like are often superseded before their capacity to serve on a physical basis is exhausted. Dies in the automobile business, for example, must in some cases be charged to the output of a particular model, and in concerns fabricating equipment to order the cost of specialized dies may be chargeable in full to a single job. Book plates and picture films are additional examples of assets which must be written off in terms of marketable output without regard to physical life or capacity.

Mules, horses, and other animals, viewed as equipment, are in a group by themselves. Such assets, although not subject to improvement in the usual sense, may increase in productivity and value for a period of years after acquisition, before exhaustion or depreciation begins to take effect. In view of this fact there is some justification here for the use of a periodic

inventory and valuation, in terms of fair market prices, as a basis for adjusting the property account and determining the amount to be charged to operation—even where this involves the recognition of a form of appreciation. See discussion of farm inventories in Chapter VI.

**Plant Ledgers.** The need for adequate ledger classification and systematic recording procedure, referred to from time to time in the foregoing discussion of plant accounts and their adjustment, deserves further emphasis at this point. The cost of plant in the general ledger should be shown by main groups of property. Usually from five to ten accounts will suffice. Each of these main headings should be supported by a subsidiary plant ledger or ledger section in which each distinct unit in the group is represented by a separate card or sheet. The principal bases of classification to be employed are physical character, length of life, use, and location. In large concerns with complex plant properties the number of underlying cards used may run into the thousands. In some cases the use of an intermediate plant ledger, controlled by the accounts in the general ledger, and in turn controlling the detailed records, is desirable. For small equipment items the use of a separate sheet or card for each separate unit is often not considered feasible, and supporting records in the form of inventory sheets—with a line for each item or small group—are employed. Wherever feasible, moreover, the individual plant record should show the cost of each important component factor represented by the particular unit. For continuous structures such as power lines, water mains, etc. the intermediate plant ledger should be constructed in terms of districts, lines, stretches, or sections, with emphasis on particular installations; each intermediate unit must in turn be broken down into the structural elements involved—for example, poles, wire, cross-arms, etc. In the case of buildings the ultimate unit is the type of subsidiary construction contract or cost (rough lumber, millwork, plumbing, painting, etc.) or the structural element (roofing, flooring, glazing, etc.) or an appropriate combination of such factors. For factory equipment, rolling stock, and other kinds of equipment represented by distinct technical units, one card or sheet is usually devoted to each separate unit or group of identical items.

The form on page 250 indicates the character of the subsidiary plant record. Additional columns may be provided for appraisal data and other information desired. The reverse side may be ruled to receive monthly depreciation charges, maintenance record, etc. If necessary more than one sheet may be employed for the single unit. Punched cards can sometimes be used to advantage for plant records. It should not be assumed, it may be added, that all necessary data with respect to plant assets can be compiled on the subsidiary ledger sheets. Record-

ing performance, power consumed, lubrication, inspection, transfer, etc. requires the use of numerous specialized auxiliary forms.

It is unfortunate that business concerns have been so slow to grasp the importance of detailed plant records; an adequate system is still the exception rather than the rule. Plant property represents a large investment, and control is just as desirable here as in the case of materials and supplies (although the latter may be more subject to misappropriation than plant). Unreasonable detail should of course be avoided but an adequate system of plant records and procedures is generally neither too cumbersome nor too costly. As a matter of fact business managements often spend large sums for special appraisals and investigations, for income-tax purposes and in other connections, most of which would be unnecessary if a satisfactory system of records were in effect.

Description_____			Control Account_____		
Department_____			Location_____		
Purchased from_____			Manufacturer's No._____		
Estimated Life_____		Depreciation Rate_____		Salvage Value_____	
Insurance_____		Weight_____		Horsepower_____	

Date	Memo	Ref.	Cost			Depreciation Allowance			Net Book Value
			Dr.	Cr.	Bal.	Dr.	Cr.	Bal.	

**Construction and Retirement Procedure.** Many enterprises, particularly in the utility field, do much of their own construction work, both in replacing and extending plant. In such situations systematic procedure and specialized records are necessary to ensure proper administration and accounting. The first step is the authorization and issue of the work or job order. The information on the order form includes nature of the work, estimated cost, estimated time required, and other details, and space is provided—on the authorization form or on supplementary sheets—for a classified record of expenditures made, including removal charges, and the data of plant retired and salvage recovered. A work-order ledger is often used, controlled by “construction in progress” in the general ledger. After a job is completed the work order is closed and the costs are recapitulated for posting to the regular plant accounts. Files of unfinished and completed orders are maintained, with supporting memoranda attached.

All forms issued in connection with major repair jobs, improvements, and reconstruction should provide for a systematic record of all retirements involved, as otherwise this phase of the accounting tends to be neglected. As indicated earlier the calculation of credits to property covering parts removed or superseded is often rather difficult. The engineering plans and specifications, the details of the work actually done, and the report of old materials salvaged are the basic records in this connection. The booking of outright retirements and abandonments should be based upon retirement orders issued by some responsible officer or employee. Systematic inspection each accounting period is necessary to ensure prompt recognition of all retirements.

**Controlling Plant Expenditures.** The maintenance, replacement, and extension of plant should be carefully controlled through periodic budgets. Preparation of a reasonable program of activity in connection with plant requires coordinated planning on the part of selling, production, and financial officials, with attention to long-run as well as to immediate needs. In making decisions as to specific replacements and improvements attention must be given to condition and possible use of existing assets, comparative maintenance costs, productive capacity, available funds, interruption of service, competitive conditions, and other pertinent factors. As in the case of other budgets the program with respect to plant should be subject to prompt revision as changing circumstances warrant, although the nature of extensive construction projects forbids their expansion and contraction overnight.

**Plant Schedules.** In connection with the preparation of financial statements, tax returns, registration statements, appraisal reports, etc., as well as for the regular purposes of internal administration, various forms of tabulations of plant assets and depreciation are required. The example on page 252 is adapted from a schedule of fixed property included in a registration statement submitted to the Securities and Exchange Commission. It is to be noted that land as well as depreciable plant assets is shown in this schedule.

The depreciation "reserve" schedule shown on page 253 is likewise adapted from one included in a registration statement.

**Auditing Plant Account.** The task of analyzing plant account, which has come to be one of the recognized duties of the public accountant, is especially difficult where cost is largely represented by lump-sum entries, with no supporting detail, which have appeared on the occasion of organization, reorganization, or merger. Serious overvaluation is often involved, and the apportionment to major groups may be faulty. About all the auditor can do in such circumstances—with respect to the original



**AMERICAN MANUFACTURING CORPORATION**  
**Schedule I—Property, Plant and Equipment**  
**Year Ended December 31, 1939**

Class	Opening Balance	Additions	Retirements or Sales	Transfers		Closing Balance
				Dr.	Cr.	
Property Used in Operations—						
Land	\$ 719,517.40	\$ —	\$ —	\$ —	\$ —	\$ 719,517.40
Buildings and other structures	2,060,044.53	—	—	—	—	2,060,044.53
Power plant and conveyors	201,564.07	30.00	—	552.52	—	202,146.59
Machines and foundations	1,172,701.41	868.77	18,362.95	1,662.76	—	1,154,535.11
Sundry shop equipment	180,510.29	341.50	—	—	23.38	1,180,828.41
Patterns, core boxes and flasks	1,259,580.79	19,017.31	3,687.68	16,103.98	9,147.70	1,281,866.70
Tracks, rolling stock and scales	28,348.78	—	—	29.00	—	28,377.78
Sundry foundry equipment	51,926.39	—	—	159.84	—	52,086.23
Automobiles, trucks, etc.	42,295.76	—	9,611.50	—	—	32,684.26
Furniture and fixtures	119,762.73	90.10	1,263.35	—	—	118,589.48
Warehouse and yard equipment	44,474.97	—	88.40	1,118.26	880.23	44,624.60
Work orders in progress	14,106.27	3,874.24*	—	—	—	10,232.03
	\$5,894,833.39	\$16,473.44	\$33,013.88	\$19,626.36	\$12,386.19	\$5,885,533.12
Property Not Used in Operations—						
Land	\$214,684.03	—	\$ —	—	\$ —	\$214,684.03
Buildings and other structures	259,003.18	—	—	—	—	259,003.18
Machinery and all other equipment	182,534.58	—	12.63	—	7,240.17	175,281.78
	\$656,221.79	—	\$12.63	—	\$7,240.17	\$648,968.99

\* Deduction, being the net amount closed out on account of orders completed during year.

AMERICAN MANUFACTURING CORPORATION  
Schedule II—Reserves for Depreciation  
Year Ended December 31, 1939

<i>Class</i>	<i>Opening Balance</i>	<i>Accrued for Year</i>	<i>Total</i>	<i>Retirement Charges</i>	<i>Closing Balance</i>
<b>For Property Used in Operations—</b>					
Buildings and other structures	\$ 549,895.42	\$ 41,200.87	\$ 591,096.29	\$ —0—	\$ 591,096.29
Power plant and conveyors	106,777.92	10,273.64	117,051.56	169.83	116,881.73
Machines and foundations	716,396.55	79,605.02	796,001.57	18,838.40	777,163.17
Sundry shop equipment	129,361.09	9,871.51	139,232.60	23.38	139,209.22
Patterns, core boxes and flasks	655,780.52	91,782.88	747,563.40	3,431.92	744,131.48
Tracks, rolling stock and scales	15,840.38	2,029.80	17,870.18	—0—	17,870.18
Sundry foundry equipment	47,137.27	1,983.15	49,120.42	—0—	49,120.42
Automobiles, trucks, etc.	37,803.90	1,927.67	39,731.57	9,611.50	30,120.07
Furniture and fixtures	49,511.89	11,646.91	61,158.80	949.13	60,209.67
Warehouse and yard equipment	20,883.39	2,901.37	23,784.76	479.80	23,304.96
	<b>\$2,329,388.33</b>	<b>\$253,222.82</b>	<b>\$2,582,611.15</b>	<b>\$33,503.96</b>	<b>\$2,549,107.19</b>
<b>For Property Not Used in Operations—</b>					
Buildings and other structures	\$ 56,537.44	\$ 5,180.07	\$ 61,717.51	—0—	\$ 61,717.51
Machinery and all other equipment	131,332.42	6,904.12	138,236.54	2,851.25	135,385.29
	<b>\$187,869.86</b>	<b>\$12,084.19</b>	<b>\$199,954.05</b>	<b>\$2,851.25</b>	<b>\$197,102.80</b>

**figures**—is to call attention to the situation and recommend a complete inventory.

In auditing plant all replacements, additions, improvements, and retirements should be compiled, and tests should be made to check the soundness of the procedures followed. In analyzing retirements care should be taken to see that proper credits have been made to plant account, that the depreciation allowance has been correctly adjusted, and that salvage and removal costs have been accounted for in an appropriate manner. Special attention should also be given to maintenance accounting, and adjustments should be made where charges have been improperly classified. Abandonments, fire losses, and other adjustments should be investigated. Assets not in use but not retired should be segregated, and attention should be given to the adequacy of the accrued depreciation applicable to such property. The entire depreciation policy should be reviewed, and where the accrued allowance appears to be clearly deficient or excessive a reasonable adjustment should be insisted upon.

The basis of valuation applied to fixed assets should be disclosed in the auditor's report, with appropriate comments.

Occasionally the title to assets is not clear, and the auditor must be alert to this possibility.

### QUESTIONS

1. "A replacement consists essentially of two transactions, and should be accounted for accordingly." Explain and defend.
2. "A replacement in kind may result in either increasing or decreasing the cost of plant in service." Explain.
3. "The net cost of removing an old unit to make way for the new is clearly a part of the cost of installation." Do you agree? Explain.
4. "The loss or gain on a trade-in is measured by the difference between the net book value of the old unit and the amount of the allowed price." Discuss.
5. What are the principal occasions or causes for the final retirement of plant units?
6. "A retirement may be recognized without junking or otherwise disposing of the asset." Explain and illustrate.
7. "The undepreciated cost of plant retired when in good condition to make way for the introduction of improved devices, which enable the concern to serve its patrons to better advantage, is clearly chargeable to the revenues produced by the new equipment." Do you agree? Explain fully.
8. Illustrate the use of a suspense account in connection with a fire loss. Can a "profit" result from a casualty which the management views as a misfortune?
9. What is meant by involuntary conversion? Give an example and outline the accounting.
10. "The plant accounts should show the market values of the assets involved—the amount which could be realized if the property was disposed of in an orderly manner." Discuss.

11. Discuss the accounting for small plant items such as hand tools. How should the cost of book plates be charged to revenue? Compare motor trucks and mules from the standpoint of periodic valuation.
12. Indicate the importance of adequate plant records and procedures. What information should appear in the individual plant account?
13. Outline a construction procedure for a concern doing its own building. What costs are likely to be omitted or understated in such circumstances?
14. With assumed figures prepare an illustrative schedule of plant cost and accrued depreciation.
15. "When an improved type of equipment comes on the market it is necessary for a concern employing outmoded facilities to retire all old equipment immediately and provide itself with the new equipment." Discuss fully.
16. What are some of the questions that should be considered by the auditor of plant property?

## XI

### DEPRECIATION ACCOUNTING

**Meaning of Depreciation.** The term "depreciation," in its most significant use, designates the expiration of the *cost* of buildings and equipment in the course of business operation. Depreciation should not be confused with the purely physical processes of decay, deterioration, etc., although physical changes may be in whole or in part responsible for economic extinguishment. The term is not ordinarily applied to the exhaustion of wasting resources such as mineral deposits, timber, etc., or to decline in land values. Many accountants also prefer to avoid referring to the amortization of intangibles, organization costs, and leaseholds and other prepayments as depreciation, although the broader usage has been adopted by the Bureau of Internal Revenue in connection with income-tax administration. Merchandise and materials are subject to deterioration and loss in value due to other causes during the period of holding, but it is generally agreed that this is better viewed as a problem of periodic valuation than as a question of depreciation accounting.

In recent years some progress has been made in the direction of wider understanding of the significance of depreciation and the importance of systematic recognition of this phenomenon in the accounts. On the other hand there remains a deplorable tendency to exhibit "net profit" in income reports before the deduction of depreciation, to associate estimated accrued depreciation with surplus and true reserves in the balance sheet, and to modify depreciation policy unreasonably from year to year. In connection with rate regulation in the utility field, moreover, depreciation concepts and procedures remain badly in need of clarification and revision. The accountant must continue to hammer on the commonplace point that the primary purpose of depreciation accounting is the orderly charging of plant costs to operations; that recognizing depreciation, like the acknowledgment of other costs, has as its principal objective reasonable income accounting rather than the disclosure of immediate property values.

**Causes of Depreciation.** The limited service life of particular units and elements of plant is due to two main classes of factors or conditions. Plant assets, in the first place, are subject to "wear and tear" from actual

operation, extraordinary damage due to improper handling or casualty, and the deterioration that comes with the lapse of time. These are so-called "physical" or "internal" causes. The second class of limiting factors includes obsolescence induced by technical developments, loss of demand for product, special governmental requirements, and all other outside conditions or circumstances that affect effective service life. These are the "functional" or "external" causes. As a basis for justifying systematic accrual of depreciation the physical causes are usually emphasized. Virtually all classes of plant assets undergo unfavorable physical changes with use and advancing age, and such changes are in some measure observable and predictable. On the other hand there is little doubt that under modern business conditions ordinary wear is usually less potent in bringing about the decision to retire than obsolescence and other external factors. On every side one sees buildings and other structures eliminated long before deterioration has advanced to a serious point, and early retirement of specialized equipment as a result of changing technical and business conditions is likewise a commonplace. It follows that the second group of influences should not be neglected in establishing a depreciation policy.

Impairment of physical character results from friction, vibration, strain, chemical reaction, weathering, and other factors associated with the utilization of plant assets. Intensity of use, care in handling, and standard of maintenance have a bearing. For many kinds of equipment, in fact, deterioration is greatly accelerated by careless operation and failure to make repairs. Physical damage also may result from various kinds of operating accidents, and from storms, floods, earthquakes, etc. The effect of minor accidents, more or less unavoidable in the handling of large numbers of plant assets, is closely allied to that of ordinary wear. Wherever feasible the risk of loss due to major casualties should be minimized or eliminated through the use of insurance.

Obsolescence in the narrow sense represents the effect of inventions and technical developments upon plant assets in use; the term is also used more broadly to embrace the influence of the entire range of changing business conditions. A distinction is sometimes drawn between the obsolescence resulting from the "normal" progress in the industry and that due to unusual and revolutionary changes in technique. By "inadequacy" is usually meant the impairment of the effective usefulness of particular plant assets as a result of changes in the character and volume of business, relocation, and other circumstances closely associated with the progress of the particular enterprise. "Supersession" is another term sometimes employed in this connection.

Cessation of demand for product naturally has a decided effect upon

the economic significance of plant assets, especially those which cannot readily be adapted to new uses. Thus a specialized machine for making a particular kind of ammunition comes to the end of its service life if the market for the product collapses, even if the machine is in first-class condition and represents the very latest and most efficient device for the purpose. In some cases the fact that the use of particular units of plant is limited can be recognized at the outset. Machines may be installed, for example, to take care of a particular contract or job, such as the building of a ship, with the expectation that retirement will occur when the project is completed. Other examples are found in the special equipment required in producing a particular type of style goods, for which the demand will presumably be of short duration, and assets such as book plates and picture films (in the typical case).

**Selection of Depreciable Unit.** A fundamental problem of depreciation policy is the selection of the unit of property in terms of which depreciation is to be calculated. At one extreme is the theory that the entire plant attaching to the enterprise, as an integrated functioning property, is the essential unit in the measurement of depreciation; at the opposite extreme is the view that each element or item of plant subject to separate elimination and renewal should be independently depreciated. It is usually expedient in practice to take a compromise position, although the tendency in recent years has been in the direction of greater subdivision. In general each major unit of equipment such as the distinct truck or machine and each building or major structure should be considered as a depreciable unit. A structural part of a particular machine or building should be depreciated separately only where the part represents a considerable element of total cost and will presumably be renewed one or more times during the life of the unit as a whole. In the case of small plant units such as telephone poles and railway ties, of which large numbers are in use, depreciation may reasonably be computed in terms of the groups of homogeneous items represented in periodic installations. Classification of plant cost, as explained in the preceding chapter, presents special difficulties where the plant consists largely of continuous structures such as water mains, railway tracks, etc.

The distinction between depreciation and maintenance depends in part on the definition of the depreciable unit adopted. If the entire assembly of plant assets were accounted for as a single property all expenditures for replacement as well as those representing routine upkeep might be viewed as maintenance—charges necessary to keep the property in a satisfactory operating condition. (See discussion of retirement policy in Chapter XIII.) Similarly if a complex structure such as a large hotel is treated as an indivisible unit for depreciation purposes the interim

renewals of exterior painting, interior decoration, flooring, roofing, etc. fall into the category of maintenance. On the other hand if the cost of plant is classified in considerable detail, with segregation of the costs of parts and elements separately replaceable as depreciable subunits, maintenance is restricted to the ordinary day-to-day charges incurred in cleaning, sharpening, aligning, etc., including supplies and minor parts consumed in keeping plant in condition. (See discussion of maintenance in Chapter IX.)

**Service Life—Reliability of Estimates.** Forecasting the lives of individual structures and units of equipment in the particular setting is a process fraught with such difficulties that it is not surprising that many engineers and other interested parties question the propriety of the accrual system generally sponsored by accountants and widely adopted in some fashion by business managements, especially in the industrial field. It is usually granted that the average life of a considerable group of like units may be estimated with a reasonable degree of accuracy where ordinary wear and deterioration is the principal factor to be considered. At the same time it is contended that the effect of obsolescence and related influences—which are often decisive in determining actual retirement date—cannot be predicted, and that therefore most estimates of effective life, and the entries based thereon, are entirely unreliable.

One can sympathize with this position without agreeing that systematic and reasonable accounting for depreciation is an impossibility. The following statement adapted from a special report of the Interstate Commerce Commission, which was made after extensive inquiry and study, represents a sane attitude on the subject:

It has been urged that most property is not used until worn out but is retired because of obsolescence, inadequacy, or governmental requirements, that it is utterly impossible to predict when inventions will be made, when business will outgrow existing plants, or when public authorities will impose restrictions, and that depreciation accounting based on estimated service lives is accordingly founded on mere guesses. There is substance in this contention, but the future is not altogether inscrutable. It is known with certainty that most units of plant will in time be retired for one reason or another, and past experience—where proper records have been kept—affords some basis for judgment. With respect to inventions it should be pointed out that a considerable amount of time ordinarily elapses before they are perfected and the resulting devices become generally available for commercial use, which means that the management often has some advance notice of probable retirement on this account. Nor is it beyond reason for a management to anticipate the time when business growth will render existing facilities inadequate. Granting that future service lives are uncertain we are nevertheless satisfied that they can be estimated with sufficient accuracy to warrant the use of depreciation accounting.

Outstanding support for the use of service-life estimates is found in the experience of the New York Telephone Co. For a period of over



thirty years this company, with a large and complex property decidedly subject to obsolescence and similar factors, has accrued depreciation systematically as an operating expense and has maintained detailed records of individual service lives in connection with such accounting. The Company's experience shows, according to the unqualified statements of responsible officials, that reasonable estimates can be made, and that the statistical work involved is not prohibitive. This evidence, coming from the field where plant accounting presents especial difficulties and in which there has been comparatively little use of the accrual policy, cannot be disregarded.

**Service Life—Principal Factors.** The first step in preparing estimates of service life for a particular unit or group of like units is to consider the effect of ordinary operating conditions, without regard to the external factors. An important question in this connection is probable intensity of use. In general high speed and continuous operation result in a shorter service life for machines than low speed and intermittent use. In the case of ordinary buildings, on the other hand, continuous occupancy as compared with, say, ten-hour use may have a negligible influence on total service life. A related and even more important consideration is the anticipated standard of upkeep. It is a commonplace that careful handling and liberal maintenance tend to prolong service life materially. The highest possible standard of servicing and repairing, however, is presumably not the one which should be adopted. The proper level of maintenance activity is that which is most reasonable and economical in view of the cost of the property, the cost of upkeep, the cost of replacement, the physical conditions under which operations are conducted, and other pertinent data.

The second main step consists of an adjustment of the preliminary estimate to allow for the effect of obsolescence, falling off of business, and other possible causes of reduced life which are external to physical condition and operating standards, and which it is not feasible to take care of by insurance. Here there is little opportunity for precise calculations; reasonable estimating, in the light of past experience and scrutiny of current developments, is all that can be hoped for. In general the very uncertainty justifies a conservative position. A rough-and-ready method followed by some industrial concerns is to set effective service life at about half the term which might be expected if it were only necessary to consider physical character and internal operating conditions.

Even if no specific evidence of obsolescence of the particular unit in use is in sight the contingency should not be neglected in estimating service life. The object is to set a reasonable period in which to absorb the cost of a unit of plant, and where past experience in the field shows

that the majority of units have been retired long before the expiration of physical life it is folly to assume that existing property is immune to technical change and other special developments. This need not be interpreted as a recommendation that obsolescence which has in no way materialized should be "accrued." Depreciation accounting should be conceived not as a means of accruing the effect of this or that factor but as an apportionment of cost over the useful life which, under all the circumstances, may reasonably be anticipated.

**Amount of Depreciation—Salvage and Removal Cost.** The amount to be written off by depreciation charges is usually measured by the total cash or equivalent cost of the unit installed and ready to function, less the estimated net amount recoverable on retirement. It is common practice to assume that salvage value will be precisely offset by removal cost and that the full cost of plant is depreciable. This assumption should not be followed blindly. In perhaps a majority of cases the probable net salvage value is such a small figure in relation to total cost that its explicit recognition in connection with the depreciation base is scarcely justified, particularly in view of the major uncertainties involved. In numerous other instances, however, the net proceeds upon retirement are regularly a substantial amount, and in such cases basing depreciation on unadjusted cost is quite unwarranted. Each situation should be considered on its merits. Where net salvage is estimated and taken into account in calculating periodic depreciation this is done either by deducting the estimated amount from cost in finding the depreciation base or by adjusting the rate applied. For example, if a machine costs \$2,500, has an estimated service life of ten years, and an estimated net salvage value of \$250, a rate of 10% applied to the net depreciable amount of \$2,250 will yield the same annual charge as a rate of 9% applied to the full cost.

The subtraction of estimated removal cost from estimated gross salvage and the use of the resulting net salvage in calculating depreciation evidently has the effect of including in depreciable plant cost a cost element which has not yet been incurred. This may be objected to on the ground that it is unreasonable to treat removal charges as a part of depreciation cost and to report an accrued reserve for anticipated expenditures as an offset to the gross book value of plant. As a practical matter the objection has little force in cases where a net salvage is expected to emerge. Where, however, removal or demolition cost is expected to exceed gross recoverable value by a substantial amount it is technically preferable to accrue the estimated net outlay at retirement through a separate reserve or to label the allowance for depreciation in such a way as to disclose its composite character. A segregated "reserve

for removal cost" is not, strictly speaking, an offset to particular assets; neither does it represent an actual liability. Such a reserve measures the extent to which revenues have been charged on account of a cost to be incurred in the future which is nevertheless applicable to all revenues arising during the life of the plant assets involved. Perhaps the most reasonable interpretation of an account of this peculiar character in the balance sheet is to consider it a contra to available resources in general—a reflection of funds implicitly dedicated to meet removal expense necessitated by the use of existing facilities.

**Basis of Depreciation—Need for Proper Statement of Cost.** Overstatement of plant cost through the use of nominal security values or by other means is clearly undesirable from the standpoint of depreciation accounting. As the padded plant account is absorbed through depreciation the operating charges are overstated and net income is correspondingly understated. Charging original overvaluation to operation thus brings about a gradual validation of nominal capital through a process of capitalization of unreported profits (assuming that revenues are sufficient to cover the overstated charges). The use of understated costs as a measure of depreciation is equally objectionable. If an element of true plant cost is charged directly to operations or to surplus as incurred the effect is to burden current or past earnings with a cost that is assignable at least in part to subsequent periods, with resulting overstatement of profits (or understatement of losses) in such periods. Either original undervaluation or arbitrary write-down, with accompanying understatement of contributed capital, likewise lays a basis for overstatement of future earning power. It is somewhat ironical, in view of this fact, that such practices are so often condoned if not vigorously supported as evidence of "conservative" policy.

It is scarcely necessary to add that where it is clear that the recorded cost of plant is misstated it is the duty of the public auditor concerned to insist upon a proper adjustment or at least a full disclosure of the condition.

The cost which should appear in the accounts, and on which depreciation should be based, is the cost to the present owner. This point is sometimes overlooked, particularly in the utility field, where one concern is absorbed by another. In such cases it is not uncommon to find the gross book values to preceding owner, and related depreciation allowances, continued on the books of the purchaser. Ignoring any excuses for such practice which may be found in utility regulation this is not good accounting. If there has been a genuine transfer of property the plant account should be charged with actual cost, without regard to the records of the previous owner. The amount of depreciation accrued

through a preceding service life has no bearing on the accounts of the buyer. Revision of the property account, on the other hand, need not be insisted upon where the transaction represents a nominal reorganization rather than a substantive change in ownership.

In this connection it is to be noted that in the recent developments in public-utility accounting, represented particularly by the policies and requirements of the Federal Power Commission and Federal Communications Commission, "original cost" of utility plant is being rigidly interpreted as cost to the owner by whom the property was first devoted to public service, without regard to the actual investment of the present owner.

**Combining Maintenance and Depreciation.** The cost of operating a unit of plant through its life may be said to include the expenditures for maintenance as well as the cost of the asset. This fact has led to the suggestion that estimated maintenance should be combined with depreciation and accrued as a single element. To illustrate, assume that a unit of plant costs \$10,000, has an estimated life of ten years, and estimated gross salvage value of \$1,500 with offsetting removal costs of \$500. Assume, further, that the anticipated cost of maintenance throughout the life of the unit, including renewal of parts, is \$3,000. Under these conditions the estimated combined net cost of using the unit for ten years is \$12,000, computed as follows:

Original cost									\$10,000
Estimated maintenance including part renewals	.	.	.	.	.	.	.	.	3,000
									<u>\$13,000</u>
Estimated gross salvage	.	.	.	.	.	.	.	.	\$1,500
Estimated removal cost	.	.	.	.	.	.	.	.	500
									<u>1,000</u>
									<u><u>\$12,000</u></u>

Using the straight-line method of apportionment the combined operating charge for each year is accrued by the following entries:

Operating Accounts					\$1,200	
Allowance for Depreciation and Maintenance	.	.	.	.		\$1,200

The allowance account is charged with routine maintenance costs as incurred and with the book value of parts retired in connection with the maintenance program. If all parts are replaced strictly in kind, and at costs identical with those implicit in the original cost of the unit, and all estimates are validated by the course of events, the plant account at the end of ten years will stand at \$10,000, and the allowance account will show a credit balance of \$9,000. The condensed entries covering retirement are:

Allowance for Depreciation and Maintenance . . . . .	\$9,000	
Cash (or equivalent) . . . . .	1,500	
Plant Cost . . . . .		\$10,000
Cash (or equivalent) . . . . .		500

In principle there is much to be said for such a procedure, but its practical utility appears to be slight. It is obviously difficult to determine the amount of maintenance for years in advance, particularly in the face of changeable prices for repair service and supplies, and the calculation of depreciation is subject to sufficient uncertainty without the introduction of an additional estimate. A more satisfactory method of recognizing the close relation between maintenance and depreciation is to accrue the cost of major parts or elements of a plant unit as depreciation, while permitting the cost of routine servicing and minor repairs to be charged to operations as incurred or spread in terms of annual budgets as circumstances dictate. Assume, for example, that a plant unit, which costs \$10,000 and has an estimated service life of ten years and a net final salvage value of \$1,000, has an important part which is subject to renewal once every three and one-third years. The original cost of this part, implicit in the original total cost, is estimated at \$1,200, the cost of replacement is estimated at the same figure, and the removal cost is estimated to offset recoverable value. In this situation the depreciation base for the ten years is \$11,400, and the annual depreciation is \$1,140. The calculation is as follows:

Original cost of the unit . . . . .	\$10,000	
Estimated net salvage . . . . .	1,000	
Original cost subject to depreciation . . . . .	<u>\$ 9,000</u>	
Part depreciable at 30% . . . . .	\$ 1,200	\$360
Balance depreciable at 10% . . . . .	<u>7,800</u>	<u>780</u>
	\$ 9,000	
Estimated cost of part renewals . . . . .	<u>2,400</u>	
	<u>\$11,400</u>	<u>\$1,140</u>

As indicated, the annual accrual can be computed either by taking 10% of the total base or by adding 30% of the cost of the part to 10% of the balance of first cost subject to depreciation. The entries necessary to recognize the yearly charge are:

Operating Accounts . . . . .	\$1,140	
Allowance for Depreciation . . . . .		\$1,140

At the end of three and one-third years the balance in the allowance account would total \$3,800, and if the part were now retired and replaced precisely in accordance with the original estimates the entries—ignoring salvage and removal cost—would be:

(1)		
Allowance for Depreciation . . . . .	\$1,200	
Plant Cost . . . . .		\$1,200
To record retirement of part		

(2)		
Plant Cost . . . . .	1,200	
Cash (or equivalent) . . . . .		1,200
To record installation of new part		

The balance in the allowance now stands at \$2,600, just one-third of the first cost subject to depreciation, exclusive of the cost of the part.

**Unit Procedure.** Where depreciation is accrued in terms of specific units of plant the balance in the depreciation allowance at any point is deemed to be applicable to the units involved in accordance with the scheme of accrual. This means that the charge to the allowance account upon retirement should be restricted to the amount assignable to the particular unit eliminated. The M Co., for example, acquires five like units of delivery equipment on January 1, 1939, at a cost of \$2,000.00 each. The estimated life of each unit is four years and it is assumed that the net trade-in value of each unit will be \$250.00. With these conditions the annual depreciation charge each year on a straight-line basis is \$2,187.50, and the entries are:

Operating Accounts . . . . .	\$2,187.50	
Delivery Equipment—Allowance for Depreciation . . . . .		\$2,187.50

At the close of business on June 30, 1942, one unit—which has suffered some damage in an accident—is retired from service, the proceeds being \$200.00 with no removal cost. No depreciation has as yet been accrued for the current year. At this point the amount in the allowance account applicable to the unit eliminated is \$1,312.50, depreciation for three years or 75% of the \$1,750.00 which is subject to depreciation. The unit has been in use for an additional six months, however, and an additional accrual of \$218.75 is therefore necessary. The entries are:

Operating Accounts . . . . .	\$ 218.75	
Delivery Equipment—Allowance for Depreciation . . . . .		\$ 218.75

The retirement entries then are:

Delivery Equipment—Allowance for Depreciation . . . . .	\$1,531.25	
Cash (or equivalent) . . . . .	200.00	
Retirement Loss . . . . .	268.75	
Delivery Equipment—Cost . . . . .		\$2,000.00

The charge to the allowance account has the effect of cancelling against cost the precise amount of the offset which has been accrued on the particular unit and does not disturb the integrity of the balance of the allowance in relation to the cost of the four like units remaining in service. The special accrual made to bring the amount of depreciation

accrued for the retired unit up to date might be incorporated in the regular entries at the close of the period provided the retirement is correctly recorded. Another minor variation consists of setting up the loss, with a concurrent credit to the allowance, as a separate journal entry.

Incidental retirement losses are often included in operating charges for the period, although it can be argued that such losses should be deducted from net income or accumulated surplus. The suggestion is sometimes made that the apparent loss should be divided between operation and surplus on the basis of a retroactive computation of the depreciation of the property retired. In the above case, for example, the unit eliminated suffered actual depreciation of \$1,800.00 in three and one-half years, or \$257.14 per period of six months. Revising the above entries on this basis results as follows:

(1)		
Operating Accounts . . . . .	\$ 257.14	
Delivery Equipment—Allowance for Depreciation . . . . .		\$ 257.14

(2)		
Delivery Equipment—Allowance for Depreciation . . . . .	1,569.64	
Cash (or equivalent) . . . . .	200.00	
Retirement Loss . . . . .	230.36	
Delivery Equipment—Cost . . . . .		2,000.00

This interpretation is not free from objection. The loss on the unit retired may be the result of the immediate situation rather than the realization of an accrual attaching to the entire period of use. There is also the technical point that where annual depreciation is booked in terms of a series of interim entries and closings, revision of operating charges in detail for any considerable period is hardly feasible. On the whole the first treatment shown is to be recommended.

The elimination of a single unit at a sacrifice of book value does not demonstrate that the lives of the other like units were improperly estimated and should be revised. On the other hand the evidence as to service life afforded by either early or late retirements should not be neglected, and where the instances are numerous an adjustment in the rate may be in order. One of the main advantages of the unit plan of procedure, in fact, is the check-up thereby afforded on the depreciation schedules in effect.

For an example of retirement at a profit assume conditions as above except that the net proceeds upon retirement amount to \$500.00. The entries are:

(1)		
Operating Accounts . . . . .	\$ 218.75	
Delivery Equipment—Allowance for Depreciation . . . . .		\$ 218.75

(2)		
Delivery Equipment—Allowance for Depreciation . . . . .	1,531.25	
Cash (or equivalent) . . . . .	500.00	
Delivery Equipment—Cost . . . . .		2,000.00
Retirement Profit . . . . .		31.25

The book profit realized upon retirement, like the loss arising in the original example, might be applied in part to an adjustment of the operating charge for the past six months.

The unit plan of depreciation accounting is the ideal treatment for all situations. As a practical matter its use is clearly desirable in dealing with relatively large, distinct elements of plant. It can also be applied successfully to aggregates of like units, particularly where no marked differences in the service lives of the individual components are expected.

**Group Procedure.** Under the "group method" an average service life is estimated for an entire group of similar plant units, and the rate indicated by such estimate is applied to the cost of units in use for the period of average life, or until the amount to be depreciated has been fully accrued. With the emphasis on average life the balance of the depreciation allowance at any point is considered to apply to the group as a whole rather than to the particular units of the group. When a retirement occurs, accordingly, the gross book value less salvage is charged to the allowance account with no recognition of retirement profit or loss.

For example, as of January 1, 1938, the R Co. buys and installs 10,000 wooden poles at a cost, installed, of \$5 each. The estimated average life is ten years and no net salvage value is anticipated. During the first year there are no retirements and operations are charged with depreciation as follows:

Operating Accounts . . . . .	\$5,000	
Poles—Allowance for Depreciation . . . . .		\$5,000

In the second year 100 poles are retired as of the close of business on December 31. Ignoring removal costs and salvage the entries are:

Poles—Allowance for Depreciation . . . . .	\$ 500	
Poles—Cost . . . . .		\$ 500

The depreciation charge for the second year consists of the full accrual on 10,000 poles. The entries are:

Operating Accounts . . . . .	\$5,000	
Poles—Allowance for Depreciation . . . . .		\$5,000

At the end of the third year another batch of 100 poles is retired. Again there is a charge of \$500 to the allowance and a credit of the same amount to poles account. The depreciation charge for the year, however, is restricted to 10% of the cost of the 9,900 poles used through the period, or \$4,950.



This procedure clearly involves the assumption of a retirement curve of such a nature that the underdepreciation on early retirements will be offset by the overaccrual on units remaining in service beyond the average life term. To validate such an assumption the retirements must be uniform throughout a period of which average life is the midpoint, or show a symmetrical or irregularly offsetting course on each side of such point. To illustrate an ideal situation the following schedule for the depreciation and retirement of the installation of 10,000 poles is assumed.

Year	Poles Retired	Depreciation Allowance		
		Dr.	Cr.	Balance
1	—0—	\$ —0—	\$ 5,000	\$ 5,000
2	100	500	5,000	9,500
3	100	500	4,950	13,950
4	200	1,000	4,900	17,850
5	200	1,000	4,800	21,650
6	400	2,000	4,700	24,350
7	400	2,000	4,500	26,850
8	1,200	6,000	4,300	25,150
9	1,200	6,000	3,700	22,850
10	2,400	12,000	3,100	13,950
11	1,200	6,000	1,900	9,850
12	1,200	6,000	1,300	5,150
13	400	2,000	700	3,850
14	400	2,000	500	2,350
15	200	1,000	300	1,650
16	200	1,000	200	850
17	100	500	100	450
18	100	500	50	—0—
	10,000	\$50,000	\$50,000	

In an actual case a substantial profit or loss adjustment would be almost certain to appear on the occasion of the final retirements in the group, as the course of retirements can hardly be expected to approximate the ideal condition. Further, the procedure is objectionable in that the accrual of depreciation might be either deficient or excessive for a considerable period of years before such fact would become apparent. In other words, as long as the depreciation allowance were large enough to offset all retirements the use of an inadequate rate would not be brought definitely to light, and similarly a condition of overdepreciation might remain unexposed until a point were reached at which there was no net book value remaining.

When the retirements from the particular purchase or installation concentrate heavily around the end of the average life—when, that is, the lives of the great majority of the individual units of the groups approximate average life—the unit plan and the group procedure will produce very similar results.

**Effect of Additions and Retirements.** With the regulations of the Bureau of Internal Revenue with respect to the tax return emphasizing the need for a precise accrual of depreciation it is important that all changes in the plant account occurring during the year be taken into consideration in computing the annual charge. It is not adequate, in practice, to compute depreciation in terms of the balance as it stands at the end of the period; depreciation must be accrued on each element eliminated and on each element added for the period of use or availability, as well as on those units persisting throughout the year.

Where a great number of small increases and decreases appear in the plant ledger, and the calculation of depreciation in terms of the specific changes becomes a very considerable task, it is usually deemed reasonable to assume that all changes occur at midyear (or, what amounts to the same thing, accrue uniformly throughout the year).

**Treatment of Fully Depreciated Property.** Depreciation computations should be modified wherever circumstances make it clear that this is advisable, and retroactive adjustment of the amount accrued is desirable. A special situation calling for adjustment is found wherever plant is fully depreciated on the books but is nevertheless continued in service. Many accountants seem to be reluctant to recommend restoration of an appropriate element of cost in such circumstances, but this attitude can hardly be justified on the score of conservatism or on any other basis. If plant assets are actually functioning the fact that their cost has been fully absorbed in earlier periods does not warrant understatement of the current depreciation charge; neither is it sound accounting to report no net value for such property in the balance sheet. The proper treatment is to charge the allowance for depreciation and credit surplus with that amount of the cost of the plant units in question which clearly is assignable to future operations. Such an adjustment, it may be insisted, does not constitute a questionable write-up of asset values and surplus. It is purely a correction of entries made in good faith in the past but now found to be in error. A restoration of plant cost through adjustment of accrued depreciation is on the same plane as a restoration of plant charges which through mistaken policy have been included in operation as incurred instead of being capitalized.

An increase in surplus resulting from a correction of an overstated depreciation allowance should be clearly disclosed and explained in the financial statements.

**Depreciation Schedules.** A form of depreciation tabulation, sometimes referred to as a "lapse" schedule, is shown on the following page. Tabulations of this general character are often used in assembling the

**TREATED CEDAR POLES—ANNUAL RATE 5%**  
Schedule of Additions, Depreciation, and Retirements  
January 1, 1935, to December 31, 1944

	Additions			Retirements		Balance	Depreciation Charges										Total
	1935	1936	1937	1938	1939		1940	1941	1942	1943	1944						
1935	\$10,000.00	\$ 100.00	\$ 9,900.00	\$247.50	\$490.00	\$482.50	\$472.50	\$462.50	\$450.00	\$435.00	\$410.00	\$382.50	\$362.50	\$4,195.00			
1936	5,000.00	200.00	14,700.00		125.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	2,125.00			
1937	1,000.00	100.00	15,600.00			25.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	375.00			
1938	5,000.00	300.00	20,300.00				125.00	250.00	250.00	250.00	250.00	250.00	250.00	1,625.00			
1939	4,000.00	100.00	24,200.00					100.00	200.00	200.00	200.00	200.00	200.00	1,100.00			
1940	2,000.00	400.00	25,800.00						50.00	100.00	100.00	100.00	100.00	450.00			
1941	2,000.00	200.00	27,600.00							50.00	100.00	100.00	100.00	350.00			
1942	6,000.00	800.00	32,800.00								150.00	300.00	300.00	750.00			
1943	1,000.00	300.00	33,500.00									25.00	50.00	75.00			
1944	600.00	500.00	33,600.00										15.00	15.00			
	<u>\$36,600.00</u>	<u>\$3,000.00</u>															
Annual Depreciation Charges	\$247.50	\$615.00	\$757.50	\$ 897.50	\$1,112.50	\$1,250.00	\$1,335.00	\$1,510.00	\$1,657.50	\$1,677.50				\$11,060.00			
Previously Accumulated Accruals		247.50	862.50	1,620.00	2,517.50	3,630.00	4,890.00	6,215.00	7,725.00	9,382.50							
Accumulated Accruals	\$247.50	\$862.50	\$1,620.00	\$2,517.50	\$3,630.00	\$4,890.00	\$6,215.00	\$7,725.00	\$9,382.50	\$11,060.00							
Accumulated Retirements	100.00	300.00	400.00	700.00	800.00	1,200.00	1,400.00	2,200.00	2,500.00	3,000.00							
Balance in Depreciation Allowance	\$147.50	\$562.50	\$1,220.00	\$1,817.50	\$2,830.00	\$3,680.00	\$4,815.00	\$5,525.00	\$6,882.50	\$8,060.00							

data of additions and retirements and accrued depreciation over a period of years.

This schedule is compiled under the group procedure. Additions and retirements are assumed to occur at midyear. Removal costs and salvage values are ignored. For convenience the effect of all retirements is recognized in computing depreciation on the first installation, since the amount of this original lot has not yet been exhausted.

**Significance of Depreciation Accounting.** Most discussions of depreciation accounting, particularly those arising in connection with public-utility regulation, evidence confused thinking and misunderstanding at important points. The view persists that the depreciation charge is a hypothetical, somewhat arbitrary item, in sharp contrast to the ordinary "out-of-pocket" costs of operation. Accrued depreciation, it is intimated over and over again, is not based on actual expenditures, is purely a matter of estimate, and has a very dubious status as a revenue charge. Depreciation charges, it is said, are "mere book entries." This attitude is widely reflected among corporate managements in the practice of reporting "NET PROFIT before depreciation." Depreciation seems to be thought of as an optional charge—a "you-can-take-it-or-leave-it" expense—which the customer may or may not care to accept as an element in purchase price. There is also a very common tendency—from which even accountants are not exempt—to confuse depreciation accounting and the financing of replacements. The essential purpose of recognizing depreciation, so many seem to think, is to accumulate funds to provide for the renewal of plant assets. This is illustrated by the old story of the board of directors who, after having listened to a public accountant expound depreciation theory and emphasize the necessity of recognizing depreciation in the accounts, borrowed a sum of money at six per cent in order to establish a "depreciation fund" which would earn only four per cent interest.

In view of this situation it needs to be emphasized, first, that depreciation does not differ, fundamentally, from any other class of operating charge. To carry on its activities a business enterprise requires the services of plant assets as well as current labor and materials, and the cost of plant—at bottom largely composed of labor and material charges incurred by others—is just as clearly assignable to revenues as are the costs of the other essential factors. As Hatfield points out, there is no basic distinction between the process of charging the cost of a stock of coal used in running a locomotive to operations and that of accruing the cost of the locomotive itself as an operating charge. And the statement that depreciation is not an out-of-pocket cost is questionable, to say the least. As a matter of fact depreciation represents the extreme example

of prepayment. Expenditures for labor and materials are made on a day-to-day, month-to-month basis; the cost of plant is incurred in advance for years at a stretch. Let no one be misled on this point. The cost of plant is an actual cost, and by the same token depreciation is a thoroughly valid operating charge. There is also little or no basis for the notion that depreciation is less likely to be recovered in revenues than other costs. In general each cost factor is on the same footing as far as normal price determination is concerned. (See the discussion of "ranking of costs" in Chapter XX.)

This does not deny that the *timing* of plant cost as a revenue charge is a peculiarly difficult problem. A unit of materials is commonly utilized as a whole in the operations of a particular period, and this fact affords a definite physical basis for the recognition of the charge. A unit of plant, in contrast, renders a series of similar services over a period of several years without being actually consumed (except in the sense of deterioration and wear and tear) in the process. The length of service life, too, is uncertain. This means that the amount of the depreciation charge for the particular period is a matter of estimate—a condition which opens the doors of discussion and debate. It may be insisted, however, that the fact that problems are involved in spreading plant cost over operations in a satisfactory manner is no warrant for adopting the attitude that depreciation is radically different in its substance from other types of operating charges.

Second, the recognition of depreciation has no essential relation to the problem of replacement. The purpose of depreciation accounting is to assign the cost of plant (to the extent depreciable) to operations, and hence to revenues, in an orderly, reasonable manner. This is just as necessary in the case of a mining shaft or sawmill which the management does not intend to replace as in the case of a stretch of telephone line which will presumably be renewed as required for an indefinite period. In other words, the necessity for charging operations with expiring cost factors, if periodic income is to be correctly reported, is not affected by the question of what will be done when the plant elements in current use are eliminated. The accruing of depreciation, moreover, does not in itself provide funds for replacement or for any other purpose. Complete recognition of all operating charges is necessary if net income or net loss is to be accurately reported, but the volume of funds flowing into the business is in general in no way affected by the process of accounting for expenses. The disposition of such funds as do become available, on the other hand, may well be influenced by the amount of net income reported. This point will be further considered a little later.

**"Reserve" for Depreciation.** The almost universal practice of attaching the label "reserve" to the total amount accrued no doubt tends to encourage misunderstanding with respect to the significance of depreciation accounting. To many this term suggests a section of surplus or even a fund of liquid resources available for replacement. Such interpretations are very wide of the mark. The balance of the allowance or "reserve" for depreciation is nothing more nor less than the estimated "hole" in the existing fixed assets, the amount of cost which it is assumed has expired as a result of operating use and the passage of time. Unless the estimate is excessive there is no vestige of surplus involved, and the accrued allowance neither directly represents a liquid fund nor indicates that such a fund has been accumulated. The allowance or reserve account is essentially a vertical section of the plant account itself, established for the purpose of segregating a special class of credits to property.

That the ordinary depreciation reserve is simply an accrued offset or contra to plant cost is made apparent when it is recognized that no such account is essential to any form of systematic depreciation accounting. It would be entirely reasonable and proper to credit estimated depreciation directly to the main plant account, in conformity with the procedure regularly employed in accounting for current assets and in writing down long-term prepayments and intangibles. Assume, for example, that a delivery truck costs \$1,500, has an estimated trade-in value of \$300, and is expected to remain in service for four years. Under these conditions the annual accrual on the straight-line plan is \$300, and if this estimated expiration is directly deducted from cost the entries are:

Operating Accounts . . . . .	\$300	
Delivery Equipment . . . . .		\$300

This is a clear-cut treatment and fundamentally is entirely unobjectionable. The only difference between this and the traditional procedure is that in one case the net book value—cost less estimated accrued depreciation—appears in a single account while in the other it is necessary to combine the separate records of cost and depreciation to find the net amount.

This is not intended as a suggestion that the indirect method of booking the accrual should be abandoned. The use of the separate allowance or reserve account to receive depreciation credits serves to emphasize the fact that the amount of depreciation is an estimate and to distinguish this element from credits representing retirements. In the second place the retention of unadjusted cost figures in the main plant accounts is a convenience in the application of straight-line depreciation rates. The

method also encourages the reporting of both cost and accrued offset in the financial statement.

The essential aspect of the depreciation entries—to return to the main point—is the charging of an accruing cost to operations, not the manner of indicating the write-down of plant.

**Depreciation in Relation to Income and Capital.** It is necessary to accrue depreciation, it has been pointed out, in order to avoid overstatement of net profit (or understatement of loss). If, for example, revenues total \$100,000, estimated depreciation applicable is \$15,000, and other expenses amount to \$75,000, failure to include the depreciation charge would result in a reported net of \$25,000, an overstatement of \$15,000. Recognizing all costs results in an income yardstick of the proper figure, \$10,000. It is in this connection that depreciation accounting may exert an influence on the *disposition* of funds. Overstatement of profit *tends* to result in unwarranted dividend appropriations and distribution of the capital of the business in the guise of earnings. It is true that a policy of accumulating apparent surplus in lieu of accruing a depreciation allowance may similarly act as a damper on dividend disbursements, but overstatement of net profits and surplus is clearly not a proper way of describing accrued depreciation and furnishes no assurance that the integrity of capital funds will be continuously maintained.

Depreciation cost, it should be made clear, is not peculiar in its relation to dividend policy and the retention of capital funds. All costs are in the same boat in this connection. If any item of labor or material expense is neglected in accounting for income the resulting overstatement of earning power will tend to encourage distribution of capital to the stockholders just as surely as will overstatement due to failure to recognize depreciation cost.

On the technical side it is well to remember that the amount of depreciation accrued for the particular period may not be identical with the charge to revenues for the period. Depreciation, like other costs, may be represented in the inventory of work in process and finished goods. There is also the possibility that under special circumstances a portion of the accrual will be treated as a nonoperating item. The depreciation cost affecting profits for the particular period is the amount assigned to revenues plus depreciation which is deemed to be a direct loss.

**"Unearned" Depreciation.** The fact that depreciation accounting, although having an important bearing on dividend policy, does not in itself provide funds can be emphasized by giving some further attention to the condition existing when operations are conducted at a loss. Assume, for example, that revenues amount to \$100,000, that depreciation expense is \$20,000, and other assignable costs total \$90,000. In these

circumstances, evidently, revenues are insufficient to cover expired values—the stream of replenishing funds is not adequate to maintain the capital of the business. It should be equally clear that the amount of funds made available by operations will not be affected either by the recognition of depreciation or failure to take this charge into account. And the same may of course be said of any other element of expense. (This ignores the possibility that in special cases specific prices may be influenced by specific cost records and calculations.)

But it does not follow that failure to “earn” depreciation justifies the reduction or omission of this factor in reckoning charges. A proper statement of income or loss is needed for the guidance of the management and others interested, and if depreciation or any other cost is in whole or in part suppressed the result is the issue of an inaccurate and hence misleading report. This should be conclusive answer to those who object to accruing depreciation where this results in “merely adding to the deficit.” The position taken here does not deny the reasonableness of the production methods of spreading depreciation in appropriate situations. (See Chapter XII.)

In this connection the unreasonableness of focusing attention peculiarly upon depreciation in interpreting an unfavorable operating result should be noted. If revenues are less than expenses this does not mean that some charges are earned in full and others are earned in part or not at all; each dollar recovered should be viewed as representing proportionate recoupment of all applicable charges. In the case mentioned above, for example, it is not sound to assume that the “other” costs totaling \$90,000 are covered in full while only 50% of the estimated depreciation is earned. The reasonable view is that the revenues of \$100,000 represent a 90.91% recovery of each and all classes of charges incurred.

**Depreciation and Working Capital.** Where revenues are adequate to cover all charges it is true that the replenishing stream of funds includes an element which may be interpreted as matching the currently expiring portion of plant assets. In this condition working capital is at least temporarily expanded by the conversion of fixed investments. For example, the M Co., at the beginning of its operations, has a financial status as follows:

Current Assets . . . . .	\$ 50,000	Current Liabilities . . . . .	\$ 25,000
Fixed Assets . . . . .	150,000	Capital Stock . . . . .	175,000
	<u>\$200,000</u>		<u>\$200,000</u>

During the first year revenues amount to \$180,000; expenses—including depreciation of \$7,500—total \$167,500. No plant assets have been re-



tired and no additional units acquired. Current liabilities are increased in the amount of \$5,000. No dividends have been paid. With these conditions the Company's ledger at the end of the year, after all adjusting and closing entries, shows balances—summarized—as follows:

Current Assets . . . . .	\$ 75,000	Current Liabilities . . . . .	\$ 30,000
Fixed Assets (Cost) . . . . .	150,000	Capital Stock . . . . .	175,000
Allowance for Depreciation (Cr.) . . . . .	7,500	Surplus . . . . .	12,500
	<u>\$217,500</u>		<u>\$217,500</u>

At this point the funds to cover the expired plant cost are included in current assets, as shown by the following tabulations:

Composition of Current Assets—	
Balance at beginning of period . . . . .	\$50,000
Amount resulting from increase in current liabilities . . . . .	5,000
Funds representing converted plant assets . . . . .	7,500
Funds representing net profits . . . . .	12,500
	<u>\$75,000</u>

Assuming that dividends of \$10,000 are now appropriated and paid in cash the current assets are reduced to \$65,000, and the net working capital stands at \$35,000. This amount exceeds the net working capital at the beginning of the period by \$10,000 (the balance of income funds, \$2,500, plus converted plant cost, \$7,500), and may or may not be excessive. If a current ratio of two to one is deemed to be desirable it appears that current assets amounting to \$60,000 must be retained to meet working-capital requirements. This leaves the amount of \$5,000 available for expenditure provided the immediate cash position makes this feasible. This "surplus" of liquid resources can be considered as originating in converted plant and profits to the amounts of \$3,750 and \$1,250, respectively.

**Disposition of Funds Representing Converted Plant.** Aside from the possibility of retention in working capital the liquid funds covering expired plant cost may be employed in one or more of the following directions: (1) to expand plant facilities; (2) to make replacements; (3) to reduce liabilities; (4) to establish a special fund to be utilized for maintenance, replacement, or other purpose at a future date; (5) to acquire outstanding stock by call or through open-market operations; (6) to facilitate dividend payments to stockholders which are appropriated from accumulated surplus in periods of lean earnings; (7) to make pro-rata disbursements of capital funds to stockholders. The first two uses, together with the strengthening of working capital, represent typical

means of employing funds which make good plant depreciation, particularly in the growing and developing enterprise. The absorption of funds along these lines, moreover, is often a continuous and commonplace feature of financial policy, not requiring periodic authorization or appropriation. Application of funds to a reduction of current liabilities is essentially a method of adding to net working capital. When other needs are not urgent it is always advisable to consider using excess current assets in reducing funded debt. Establishing a special fund of cash or securities which will not be disbursed in the reasonably near future has a limited value as a means of utilizing converted plant assets. See following discussion of replacement funds. The same is true of the use of funds to acquire particular blocks of common or preferred stock. The bearing of depreciation on the possibility of *paying* dividends out of current revenue funds which are *appropriated* out of the earnings of earlier periods is discussed in later chapters. Liquidating dividends related to depreciation and depletion charges are especially common in mining enterprises and other extractive lines.

**Replacement Funds.** The fact that segregated depreciation or replacement funds have not been popular among business managements need not be surprising. The accumulation of such a fund represents the commitment of capital in a direction out of line with the main purpose of the enterprise, and typical fund assets—bank balances, trust deposits, and securities—have a relatively low rate of yield. Where, accordingly, there is ample opportunity to utilize converted plant resources in increasing working capital and in extending and improving fixed facilities the long-term funding of such resources is a policy which has little appeal.

In considering the possible use of replacement funds it should be recognized that the amount of money that will be needed when a unit of plant is retired and a new unit is acquired to take its place is not likely to approximate the depreciable cost of the old asset. The incoming unit may be of a decidedly different type, and even in the case of a replacement in kind the expenditure required may be more or less than the cost of the unit superseded.

Replacement funds in industrial enterprises are almost always confined to temporary deposits to take care of short-run programs of renewal and construction. In municipal enterprises and public-utility concerns, however, contractual or statutory provisions occasionally require the systematic funding of amounts collected from patrons to cover accrued depreciation. See discussion of the sinking-fund method in the following chapter. It should again be pointed out that the entries necessary to accrue depreciation should not be confused with the entries covering fund deposits or fund income.

**Use of Other Bases than Cost.** Throughout this chapter the position has been taken that the cost of plant, subject to adjustment for net salvage, is the gauge or measure of depreciation. At this point it should be recognized that this position is not free from limitations. For almost all cases recorded cost is the natural starting point in reckoning depreciation, but the validity of this basis may later be affected by changing conditions. In particular, marked increase or decrease in the level of plant cost as reflected in new construction and purchases on the market raises a serious question as to the significance of depreciation charges computed without reference to current prices. The only figures which are truly important from the standpoint of operating management, it is often argued, are those based on cost of replacement, not recorded book cost. In the valuation of property in connection with rate regulation, financing, insurance adjustment, etc., cost of replacement or reproduction has long been recognized as having a considerable bearing. It is probably fair to say—and without implying that the cost basis should be abandoned—that accountants have in general been too reluctant to consider this problem on its merits. (See Chapters XIV and XV.)

Depreciation as a deduction for income-tax purposes must be calculated in terms of actual dollar cost except in a number of special situations. In the case of depreciable property acquired prior to March 1, 1913, the official date of the inauguration of the modern program of income taxation, the accepted basis is "fair market value" as of the stated date or cost, whichever is the greater. For property acquired through inheritance the required basis, in general, is "fair market value" at date of death of grantor or decedent. Special rules are also applicable to property received through donation, involuntary conversion, exchange, and other special circumstances.

### QUESTIONS

1. Define depreciation. What is the essential purpose of depreciation accounting?
2. Outline the principal factors which bring about the retirement of plant assets under modern conditions and indicate the relative importance of each.
3. With illustrations discuss the problem of selecting the unit for depreciation purposes.
4. "The service life of the particular unit of plant in a particular setting is so uncertain as to render any estimate thereof a mere guess." Comment.
5. Indicate the relation of intensity of use and standard of maintenance to service life. State the general procedure to be followed in estimating life.
6. What is the standard formula for determining the amount to be absorbed through depreciation charges? Discuss the treatment of salvage and removal cost.
7. Show that from the standpoint of income determination original understatement of depreciable assets is not a "conservative" policy.
8. What is the basis for depreciation when used property is taken over by a new owner?

9. Indicate the close relation of maintenance and depreciation, and illustrate the possibility of the accrual of both elements as a single cost. Is such procedure desirable?

10. Explain the unit plan of accounting for depreciation and handling retirements, and indicate the conditions under which it is especially applicable. How should profit and loss adjustments arising at retirement be handled?

11. What are the essential features of the group procedure? Under what conditions can this procedure be most strongly supported?

12. How may the effect of numerous small additions and retirements on the annual depreciation charge be approximated?

13. "When property has been written off in full it is entirely improper to charge any part of the cost to operations a second time, even where the asset is continued in use for a considerable period." Discuss.

14. Criticize the view that depreciation is not an "out-of-pocket" cost.

15. "The essential purpose of depreciation accounting is to provide a reserve against which renewals may be charged." What two misconceptions are involved here?

16. In what respects does accounting for depreciation differ from accounting for materials cost?

17. "Last year the company earned its preferred dividend and a part of the regular depreciation charge." Discuss.

18. Show that the use of a reserve account in booking depreciation is not necessary. What are the advantages of the indirect method of booking?

19. "Charging depreciation to revenues reserves assets in the business to make good expired plant cost." In what sense, if at all, can this statement be justified?

20. "Recognizing unearned depreciation merely increases the operating deficit and is worse than useless." Criticize. Would the statement be any more unreasonable if "labor cost" were substituted for "depreciation"?

21. "A charge for depreciation amounts, in effect, to a transfer of value from the fixed-asset division of the balance sheet to the current section." Discuss.

22. Prepare a list of the uses to which funds that may be said to cover expired plant cost may be put. Comment on each.

23. Discuss the use of long-term replacement funds.

24. "Depreciation reserves should always be funded. The correct entries to reflect such funding consist of a charge to the fund account and a credit to the depreciation reserve." Criticize both statements.

25. What is the main alternative to cost as a measure of depreciation?

## XII

### PERIODIC ASSIGNMENT OF DEPRECIATION

**Methods of Spreading Depreciation.** In the discussion of plant accounts and depreciation in preceding chapters the problem of securing a reasonable periodic distribution of the total amount of depreciation, after the cost of plant has been properly classified and service lives for the component elements have been determined, has been largely ignored. Actually the assignment of depreciation to the accounting periods embraced in service life raises a number of interesting and difficult questions and accordingly deserves systematic consideration.

The various policies and methods proposed may be classified roughly under four heads: (1) straight-line apportionment; (2) interest methods; (3) production and revenue methods; (4) decreasing-charge methods. The straight-line plan assumes that depreciation accrues uniformly in time—that the depreciable cost or other basis expires at a constant rate, hour by hour and day by day, during the life of the asset. This is the method which has been taken for granted in the preceding discussion and which is generally employed by business concerns. Under the interest procedure—of which there are a number of variations—depreciation is accrued at an increasing rate, the essential object being the preservation of a sound relation between investment and income. None of the interest methods has been widely used, although there has been considerable discussion of their possible application in the public-utility field. The third group includes all schemes designed to correlate the write-off of plant cost with business activity, in terms of either physical units of output or values. The use of this approach has been on the increase in recent years. The decreasing-charge methods are highly arbitrary devices designed to secure an early absorption of the major portion of plant cost, and have little standing in American practice.

All of these policies of dealing with the problem of assigning depreciation to accounting periods are considered in the following pages.

**Straight-Line Method.** As implied in illustrative computations of depreciation in preceding chapters the periodic charge to operations under straight-line apportionment is found by dividing the depreciable amount by the number of periods represented in the service life. If a particular

machine, for example, costs \$1,800, is expected to have no net salvage value, and will probably remain in service for 120 months, the monthly depreciation charge is \$1,800 divided by 120, or \$15. As a rule the periodic accrual is expressed as an annual or monthly rate applied to cost. Thus in the example the annual rate is  $180/1800$  or 10%. If the depreciable amount is less than cost a rate may still be computed on cost, although in this case the estimated service life is not the reciprocal of such rate.

The underlying basis for the straight-line plan lies in the fact that depreciation occurs in time and that at least some of the factors that bring about physical decline are often in effect more or less continuously. The deterioration of cast-iron water mains, for example, is neither accelerated nor retarded in appreciable degree by variation in the amount of water piped, and progresses without regard to the time of day or season of the year. On the other hand the cases are perhaps more numerous in which physical wear is decidedly influenced by extent of use and changes in operating conditions. The life of an electric motor, for example, is largely a question of the amount of running time. With respect to the effect of obsolescence and related factors it may be said that while there is no way of demonstrating the validity of the straight-line assumption it is difficult to suggest a more acceptable alternative.

The straight-line method has been widely adopted because of its simplicity in conception and application and because other proposed methods have not been shown to be more satisfactory for general use. In a publication of the Bureau of Internal Revenue based on an extensive investigation of the subject of depreciation the straight-line plan is defended as "administratively desirable" and as a method which "approximates the actual depreciation as nearly as any of the so-called scientific methods." The experience data with respect to the service lives of particular classes of property are commonly compiled in terms of straight-line rates.

**Objections to Straight-Line Depreciation.** The principal theoretical objection to the straight-line method is found in the tendency toward an increasing rate of return on remaining investment that results from its use. A fishing launch, for example, costs \$2,000, and the owner expects to keep it in service for five years from date of purchase. The estimated net sale value at retirement is \$400, and the depreciation per year by the straight-line plan is accordingly \$320. The estimated revenues and expenses (exclusive of depreciation) are \$1,100 and \$700, respectively, per annum. The effect in this assumed situation of the use of straight-line depreciation upon the rate of return is shown by the tabulation on page 282. The result of the computation is a rate of return on the launch

ranging from 4.35% the first year to 14.29% for the fifth year. Evidently this is not a reasonable picture of the history of this asset, viewed as a distinct venture or investment, as business assets in general manifest no ability to earn more per dollar of remaining investment with increasing age. (If there were any tendency in this direction it would be promptly reflected in a brisk demand for used plant properties.)

Year	Average Investment *	Revenues	Expenses			Net Income	Rate of Return, %
			Depreciation	Other	Total		
1	\$1,840	\$1,100	\$320	\$700	\$1,020	\$80	4.35
2	1,520	1,100	320	700	1,020	80	5.26
3	1,200	1,100	320	700	1,020	80	6.67
4	880	1,100	320	700	1,020	80	9.09
5	560	1,100	320	700	1,020	80	14.29

\* Average of net book values at beginning and end of year.

From a practical standpoint this criticism of uniform spreading of depreciation is minimized by the fact that the plant property of the typical industrial concern is represented by a considerable number of units in various stages of service life, rather than by a single operating asset. The assumption of stable revenues and expenses, moreover, introduces a condition seldom if ever realized. In fact there is some evidence that net income tends to fall with increasing age due to declining gross, increasing operating charges, or both. The scale of rentals for space in an old office building, for example, is usually on a lower level than that of a competing new building, and maintenance costs are likely to run higher in the old structure. And even where the rate charged for a unit of output remains unchanged the total of gross is likely to be diminished by the increasing time required for servicing and repairing. A taxicab in its last year of operation, for example, is likely to be out of service on account of repairs for more hours than a new car. It should also be borne in mind that not all the investment of the ordinary business is represented by depreciable assets. On the other hand it cannot be denied that the criticism has force in situations where operation centers in the use of one major unit of depreciable property such as a ship, toll bridge, or station building.

The contention that straight-line depreciation results in excessive accumulation of funds is dealt with in the next chapter.

**Interest Methods of Apportionment.** The compound-interest methods of spreading depreciation derive support chiefly as a means of meeting the objection to the straight-line plan discussed above. These methods em-

phasize the conception of a plant asset as a bundle of services, to be realized through the expected life period. From this standpoint the original cost and succeeding periodic balances can be considered to represent the present value of the series of remaining services in each case, expressed in dollars, determined by the application of an appropriate rate of interest. The periodic depreciation charge is then computed in a manner consistent with the underlying valuation process assumed. Among the numerous forms of calculation and procedure which have been proposed three principal variations are found, which may be labeled as follows: (1) the annuity method; (2) the sinking-fund method; and (3) the compound-interest method. Under the first of these the charge to operation each period includes the full value of the service of the unit of plant as received, and the implicit interest earned on the remaining investment is treated as an earning. The second method, in the traditional form, involves the accumulation of a fund through a series of equal deposits which with accruing interest at a given rate will amount to the cost or other depreciable base by the end of the estimated life, and the charge to operation each period—if the proper scheme of recording is followed—is equal to the sum of the regular fund installment and the interest accumulation for the period. The third treatment can be interpreted as a modification of either of the other procedures, or as in itself the basic form of compound-interest apportionment. It provides for a charge to operations equal to the amount which, periodically invested in the business, will accumulate to the absorbed plant value during service life, including the estimated implicit interest for the period.

All of the interest methods, in their net effect, bring about a systematically increasing operating charge throughout service life. This characteristic is very marked in the case of long-lived units. For example, application of the compound-interest policy at a 6% rate in accruing depreciation of a building which costs \$100,000.00, has an estimated life of fifty years, and no net salvage value, results in a charge to operations for depreciation the first year of only \$344.43, roughly  $\frac{1}{3}\%$  of the amount to be written off, while the burden in the last year would be \$5,985.31—nearly 6% of cost and over seventeen times the initial charge. Such a scheduling of depreciation hardly seems reasonable from a practical standpoint in view of the declining productivity and increasing maintenance commonly associated with advancing age, to say nothing of its lack of conservatism in the light of the general uncertainty confronting the owner of plant assets.

The complexity of the interest methods is likewise an objection to their use in practice, particularly for concerns having many units of property which vary in service life and other characteristics.



**Annuity Method Illustrated.** At the beginning of a particular year the M Co. acquires a building by lease for a period of twenty-five years, paying therefore a lump sum of \$127,833.56. The Company then sublets the building for the same period to the R Co. at an annual rental of \$10,000.00, due at the end of the year. The R Co. also agrees to pay all maintenance, taxes, insurance, and other charges connected with the use of the building. The cost of the leasehold, under these conditions, can be viewed as the present value of an annuity of \$10,000.00 per year for twenty-five years at an interest rate of 6%. During the first year the original investment of \$127,833.56 accumulates at 6% to \$135,503.57, an increase of \$7,670.01, and after collection of the rental of \$10,000.00 on the sublease the balance is \$125,503.57. The computation for the second year is as follows:

Opening balance of investment . . . . .	\$125,503.57
Interest accumulation at 6% . . . . .	7,530.21
	<u>\$133,033.78</u>
Annual rental . . . . .	10,000.00
Closing balance of investment . . . . .	<u>\$123,033.78</u>

The entries for the first year are:

(1)		
Investment in Leasehold . . . . .	\$127,833.56	
Cash (or equivalent) . . . . .		\$127,833.56
To record original cost of lease		
(2)		
Investment in Leasehold . . . . .	7,670.01	
Lease Revenue . . . . .		7,670.01
To record implicit interest earned on investment		
(3)		
Cash . . . . .	10,000.00	
Lease Revenue . . . . .		10,000.00
To record collection of annual rent		
(4)		
Amortization Charge . . . . .	10,000.00	
Investment in Leasehold . . . . .		10,000.00
To record annual gross amortization		

The second year's entries are:

(1)		
Investment in Leasehold . . . . .	\$ 7,530.21	
Lease Revenue . . . . .		\$ 7,530.21
(2)		
Cash . . . . .	10,000.00	
Lease Revenue . . . . .		10,000.00
(3)		
Amortization Charge . . . . .	10,000.00	
Investment in Leasehold . . . . .		10,000.00

Entries for succeeding years would follow the same pattern.

The gross revenue produced by the property the first year, according to this treatment, is \$17,670.01, and the net return after the deduction of the amortization charge of \$10,000.00 (ignoring assignable administrative costs and other possible expenses) is \$7,670.01, which is 6% of the investment in property at the outset. The second year the net return is \$7,530.21, again 6% of the investment balance at the beginning of the period. The income account is evidently padded on both sides by the amount of the interest on the investment, and as a result the apparent amortization cost remains constant at \$10,000.00, precisely the amount of the cash annuity assumed. This is the peculiar characteristic of the traditional annuity method of apportionment. The net write-off of the original cost of the property the first year, \$2,329.99, is found by subtracting the amount of interest accrued, \$7,670.01, from the gross charge of \$10,000.00. The amount of \$2,329.99 also represents the difference between the value of the twenty-five rentals of \$10,000.00 each discounted to the initial date at 6%, \$127,833.56, and the value of twenty-four such incomes discounted to the beginning of the second year, \$125,503.57. The net write-off the second year similarly computed is \$2,469.79, an increase of \$139.80. This condition—an increasing charge—is present in every form of interest apportionment, however disguised.

A straight-line amortization in this case would result in a charge each year of one twenty-fifth of the cost of the property, or \$5,113.34, and a net return of the difference between this amount and the rent received of \$10,000.00, or \$4,886.66—a constant amount notwithstanding the declining investment in the property.

Strictly speaking the property of the M Co. in the illustration is a long-term prepayment rather than a depreciable plant asset; hence the use of the term "amortization." The amortization is credited directly to the investment account rather than to a contra account in view of the fact that the life of the asset and the earnings throughout such life are contractual rather than estimated. An incidental question is the treatment of taxes, maintenance, etc. Even if such charges are fully assumed by the R Co. there is some force in the contention that they should appear on the books of the M Co. both as additional revenues and as operating costs. (See discussion of improvements on leased property in Chapter IX.)

The annuity method, even when applied to a special situation such as that illustrated here, is unsatisfactory in that it results in charges to revenue which include net return as well as the cost of the property. (See discussion of interest on investment as a cost in Chapter XXI.) For ordinary plant assets it is entirely unsuitable. Buildings and equipment committed to business undertakings do not represent contractual

**investments.** The cost of a factory machine, for example, is not actually the discounted value of a known series of services or uses. The owner hopes, it is true, to recover through revenues both the cost of the machine and a satisfactory return, but he has no assurance on either count. Further, whatever income is produced by the particular machine is ordinarily implicit in sales or other form of operating revenue, is not recognizable until sales appear, and cannot then be isolated except by some process of imputation.

**Sinking-Fund Method Illustrated.** As of January 1, 1941, the M Co. acquires a toll bridge at a cost of \$127,833.56. The bridge has an expected life of twenty-five years, and no net salvage value is anticipated. Arrangement is made with the R Trust Co. to receive sinking-fund installments on a 3% basis, with annual compounding. The annual installment which, deposited at the end of each year, will at this rate accumulate to the cost of the property at the estimated retirement date is approximately \$3,506.20. (In Table 3, Chapter XXVIII, the installment which will accumulate to \$1.00 in 25 periods at 3% per period is found to be 2.742787 cents; multiplying this figure by 127,833.56 gives the required annual deposit of \$3,506.20.) The depreciation charge for the first year is equal to the amount of the annual deposit; the charge for the second year is equal to the sum of the periodic payment and the interest earned on the fund during the year, or a total of \$3,611.39; the charge for the third year is again the amount of the regular deposit and the year's interest accumulation, or a total of \$3,719.73; and so on. The proper entries for the first three years can be outlined as follows:

First Year

(1)		
Operating Accounts . . . . .	\$3,506.20	
Allowance for Depreciation . . . . .		\$3,506.20
To record depreciation accrual for year . . . . .		

(2)

Replacement Fund—R Trust Co. . . . .	3,506.20	
Bank Account . . . . .		3,506.20
To record deposit with trustee . . . . .		

Second Year

(1)		
Operating Accounts . . . . .	3,611.39	
Allowance for Depreciation . . . . .		3,611.39

(2)

(As above)

(3)

Replacement Fund—R Trust Co. . . . .	105.19	
Interest Earned on Replacement Fund . . . . .		105.19
To recognize interest accrued on fund . . . . .		

Third Year		
(1)		
Operating Accounts	3,719.73	
Allowance for Depreciation		3,719.73
(2)		
(As above)		
(3)		
Replacement Fund—R Trust Co.	213.53	
Interest Earned on Replacement Fund		213.53

Under the sinking-fund plan, as these entries show, the accrual of depreciation precisely parallels the accumulation of the fund.

The following suggests the form in which the data of this situation may be tabulated:

Year	Deposit	Interest	Annual Charge	Accrued Depreciation*	Net Book Value
1	\$ 3,506.20	\$ -0-	\$ 3,506.20	\$ 3,506.20	\$124,327.36
2	3,506.20	105.19	3,611.39	7,117.59	120,715.97
3	3,506.20	213.53	3,719.73	10,837.32	116,996.24
25	3,506.20	3,621.19	7,127.39	127,833.56	-0-
	<u>\$87,655.00</u>	<u>\$40,178.56</u>	<u>\$127,833.56</u>		

\* Same amount as accumulated fund.

Aside from the general objections to the interest methods already noted, the rigid sinking-fund plan is not applicable as a practical matter except in those rare cases where contractual conditions or other special circumstances require a funding of liquid resources made available by revenues in an amount measured by accrued depreciation. See discussion of replacement fund in preceding chapter.

The relation of the sinking-fund policy to the regulation of public utilities is given some attention in the following chapter.

**Effect of Sinking-Fund Method.** There is a persistent opinion in some quarters, entirely without foundation, that the use of the sinking-fund method as compared to the straight-line plan results in an actual reduction in depreciation charges. This fallacy presumably arises from focusing attention on the amount of cash deposited in the fund rather than on the property value to be written off; from confusing fund operations with depreciation accounting. It also seems to ignore the effect of the interest accruing on the fund on the income account of the depositing enterprise. Accounting for depreciation, it must be insisted, consists essentially of systematic recognition of the expiring cost or value of plant assets. Intrinsically it has nothing to do with fund accumulation, and it is quite impossible for the total amount of depreciation in a given case to be affected by any procedure adopted with respect to the handling

of available liquid resources. Under the sinking-fund method, it is true, a fund accumulation is definitely associated with the accruing of depreciation, but the amount of the cost of plant to be charged to operations is certainly not changed by the decision to employ an interest calculation in apportioning such cost.

Misinterpretation of the sinking-fund method is sometimes encouraged by the adoption of an improper scheme of entries. Assume, to illustrate, that the entries for the second and succeeding years in the above example are recorded as shown by the following scheme:

(1)		
Operating Accounts . . . . .	\$3,506.20	
Replacement Fund—R Trust Co. . . . .	105.19	
Allowance for Depreciation . . . . .		\$3,611.39
(2)		
Replacement Fund—R Trust Co. . . . .	3,506.20	
Bank Account . . . . .		3,506.20

Under this procedure operations are charged each year with only \$3,506.20, or a total of \$87,655.00 during the life of the bridge. But this reduction of charges is accomplished by omitting from income the interest earned on the fund, a total of \$40,178.56. Costs are understated, in other words, by canceling an important element of income against the actual charges incurred. This is clearly improper, and if carried to the extreme would reduce income accounting to a showing of net gain or loss. Overlooking the interest on the sinking fund as an earning is equivalent to forgetting that the cash deposited in the fund, to match the expired value of plant, is an asset of the enterprise—which is manifestly absurd.

It is true that the sinking-fund treatment, like other interest methods, results in a smaller charge in the early years than appears if straight-line apportionment is employed. In the case given, for example, the charge the first year under the sinking-fund method (\$3,506.20) is \$1,607.14 less than the amount (\$5,113.34) that would be charged by straight-line procedure. In the last year, on the other hand, the charge required by applying the sinking-fund method (\$7,127.39) exceeds straight-line depreciation by \$2,014.05. Under either method, properly recorded, the total charge throughout the service life is the same.

**Sinking-Fund Method and Bond Retirement.** Another misconception associated with the use of a sinking fund is the view that the fund accumulation is a substitute for depreciation and that to require a fund and also a charge for depreciation places a double burden on earnings. This impression is especially likely to prevail where a program of bond retirement is also involved. For example, a softening and filtration plant for a municipal water works is built at a cost of \$500,000.00, the funds being secured through an issue of twenty-year, 4% revenue bonds. The

contract with the bondholders requires the accumulation of a fund out of earnings under a plan by which the enterprise deposits each year with a trustee, in addition to interest money, the amount of \$16,790.88 to be applied to the retirement of bonds. At the same time, upon the recommendation of the engineers and accountants, the city adopts the sinking-fund plan of depreciating the water plant over a period of twenty years. A 4% rate is used, with an estimated net salvage of zero, which gives an initial charge and periodic replacement fund deposit of \$16,790.88. (In Table 3, Chapter XXVIII, the annual installment which will accumulate to \$1.00 in twenty years at 4% per year is found to be 3.358175 cents; multiplying by 500,000 gives \$16,790.88.) Assuming these arrangements are put into effect, that both bond retirement and replacement fund deposits earn precisely 4%, and ignoring bond interest and manner of investing or utilizing the two funds, the entries for the first two years are:

First Year			
(1)			
Operating Accounts . . . . .	\$16,790.88		
Allowance for Depreciation . . . . .		\$16,790.88	
To accrue depreciation			
(2)			
Replacement Fund . . . . .	16,790.88		
Bank Account . . . . .		16,790.88	
To record annual deposit in replacement fund			
(3)			
Bond Retirement Fund . . . . .	16,790.88		
Bank Account . . . . .		16,790.88	
To record annual deposit in bond fund			
(4)			
Income (or Surplus) . . . . .	16,790.88		
Reserve for Bond Retirement . . . . .		16,790.88	
To appropriate net earnings equivalent to bond fund			
Second Year			
(1)			
Operating Accounts . . . . .	17,462.51		
Allowance for Depreciation . . . . .		17,462.51	
(2)			
(As above)			
(2a)			
Replacement Fund . . . . .	671.63		
Interest Earned on Replacement Fund . . . . .		671.63	
To record interest earned			
(3)			
(As above)			
(3a)			
Bond Retirement Fund . . . . .	671.63		
Interest Earned on Retirement Fund . . . . .		671.63	
To record interest earned			

(4)		
Income (or Surplus)	17,462.51	
Reserve for Bond Retirement		17,462.51
To appropriate net income equivalent to increase in retirement fund		

Examination of these entries makes it plain that the requirement of a replacement fund, and of a bond retirement fund as well, does not result in excessive or duplicate charges to operations. It may well be argued, however, that the policy of maintaining revenues at such a level that the users of the services of the plant buy out the bondholders in addition to providing funds for replacement imposes an unreasonable burden on the first generation of patrons. If provision is made to retire the bonds representing the cost of the property through a sinking fund, the fund aspect of the depreciation policy might be considered to be satisfied without other deposits. The replacement fund, in other words, might be "invested" in outstanding bonds. Then when it was necessary to replace the plant the new asset could be financed through borrowing as was the original property. Adoption of such a policy would not disturb the integrity of the accounting for revenues and expenses and would preserve equity between successive generations of customers. On the other hand, it may be desired to set rates at a point which will assure some net revenue in excess of bond interest requirements—as a safety factor, if for no other reason—and in this event funds will be made available for bond retirement or other purposes in excess of an amount sufficient to recover the cost of the plant.

Funds and reserves established in connection with programs of bond retirement receive further attention in later chapters.

**Compound-Interest Method Illustrated.** The M Co., in the process of buying and constructing a large number of units of plant, builds a warehouse at a cost of \$100,000.00. The estimated service life is twenty years and it is assumed that there will be no salvage value. It is decided to spread depreciation on a compound-interest basis but without the use of a specific replacement fund. The rate of interest selected is 6%, the estimated average earning power of the business as a whole. Under these conditions the initial annual charge—the amount of an annuity which at 6% would accumulate to \$100,000.00 in twenty years—is \$2,718.46, and the entries are:

Operating Accounts	\$2,718.46	
Allowance for Depreciation		\$2,718.46

The second year the depreciation is the sum of the original charge and interest at 6% on the amount previously accrued, or \$2,881.57. For the third year the depreciation is again the sum of the original charge and

interest at 6% on the total accrued as shown by the balance in the allowance account at the beginning of the period. And so on. The tabulation given below indicates definitely the method of calculation.

Year	Annual Depreciation Charge			Accrued Depreciation	Net Book Value
	Annuity	Interest	Total		
1	\$ 2,718.46	\$ —0—	\$ 2,718.46	\$ 2,718.46	\$97,281.54
2	2,718.46	163.11	2,881.57	5,600.03	94,399.97
3	2,718.46	336.00	3,054.46	8,654.49	91,345.51
⋮					⋮
20	2,718.46	5,506.50	8,224.96	100,000.00	—0—
	<u>\$54,369.12 *</u>	<u>\$45,630.88</u>	<u>\$100,000.00</u>		

\* 20 times \$2,718.456.

For each period the interest factor to be included in the total charge to operations is found by applying the rate of 6% to the imaginary fund corresponding to the total accrued depreciation. (The total accrual at the beginning of the twentieth year— $(\$100,000.00 - \$2,718.46)/1.06$ —is \$91,775.04; 6% of this amount is \$5,506.50.) The marked increase in the annual charge—from \$2,718.46 the first year to \$8,224.96 in the twentieth—need not be surprising in view of the length of time involved and the comparatively high rate of interest employed.

The plain compound-interest method as outlined here can be viewed as the sinking-fund plan stripped of the fund requirement. All assets received which represent the recovery of plant cost are intermingled with other funds and are available for all legitimate purposes—a desirable condition for the typical industrial enterprise. The method may also be viewed as the annuity plan on a net basis; the annuity plan, that is, with implicit interest earned on remaining investment excluded from both revenue and cost.

**Production Methods of Apportionment.** Neither straight-line nor interest methods of spreading depreciation take fluctuating activity or output into consideration, and this is perhaps their most serious weakness. There is considerable force in the proposition that plant assets should be written off in proportion to actual use and results accomplished rather than by periods of time as such. The cost of plant represents essentially a prepayment on account of expected services and is therefore chargeable to operations—ideally—as such services are received. From this standpoint, for example, a delivery truck should be depreciated in terms of miles driven, an airplane motor in terms of flying hours, and a steam shovel according to yards of material moved or some other appropriate gauge of service rendered. Similarly when factory equipment is being used by three shifts per day instead of one it seems



reasonable to hold that the depreciation recognized should be correspondingly increased.

On the other hand there are serious objections to the general use of degree of activity or volume of production as the sole basis on which to apportion plant cost. Deterioration of structures and many kinds of equipment is in some degree a matter of age rather than actual use. There is no evidence that the effect of obsolescence and related factors is retarded during slack periods. Failure to receive expected services in a particular period, moreover, is generally not accompanied by assurance of later increased use. These considerations, coupled with the clerical work involved and other difficulties of application, render the production approach less acceptable than it appears at first sight.

Conventional production methods, like the straight-line policy, ignore the factor of interest, and hence tend to result in peculiar relationships from period to period between reported earnings and net book value. Conceivably the production approach might be refined by viewing the cost of the plant unit as the present worth, at a suitable rate of interest, of a series of services fluctuating in accordance with an assumed pattern, and scheduling depreciation charges accordingly. The major practical difficulty in the way of any such development is that of finding any reasonable basis for plotting in advance the course of activity throughout service life.

Much of the support for apportionment of depreciation in terms of activity comes from the ranks of the cost accountants, as might be expected. To one interested in measuring the costs of particular processes, departments, and classes of product, for comparatively short periods of time, it may seem just as unreasonable to ignore variations in the extent of use of the plant as a whole in computing the total depreciation charge per period as it would be to fail to recognize the variations in plant service rendered to particular departments or other centers of cost accumulation in the process of allocating such total charge. The cost accountant should remember, however, that business operation is seldom if ever carried on under ideal conditions and that depreciation may continue to accrue on facilities representing a normal amount of unutilized capacity as a general cost of operation, even if such depreciation is not readily assignable to particular cost classifications. He should remember, further, that where activity is at an unusually low ebb and many facilities are entirely idle or only partially employed depreciation may continue to accrue as an outright loss. Not all of the depreciation accruing during a period of sharp depression, in other words, need be viewed as a part of current cost of production.

Estimating service life is not avoided by the adoption of any form of

production method of apportioning depreciation, and the effect of obsolescence and related factors must not be ignored in making the estimate. If, for example, the life of a machine on a purely physical basis is ten years but its probable effective life in view of all impinging conditions is only five years, it is clear that the number of units of productivity or service to be expected is correspondingly restricted. The estimate of services to be received, in other words, should be in harmony with—if not actually based upon—the estimate of life. At the same time it should not be overlooked that in some cases the fundamental estimate is the amount of service to be expected, with life being represented by the time taken to exhaust the available units of service.

The activity of plant assets may be measured in specific services rendered, working time, units of final output, or dollars of sales. The particular scheme adopted should be that most suited to the situation, and several variations may be reasonably employed by a single enterprise. For factory equipment number of operations and working hours are usually more appropriate bases than either the amount or value of product, especially in view of the difficulty of estimating production for a considerable period and of associating finished goods with particular units of plant. In mining, lumbering, and related lines, on the other hand, where it is possible to estimate total physical output, the depreciation of structures and equipment having a life as long or longer than the period required to exhaust the available mineral deposit or other natural resource can readily be computed in terms of units of product. The depreciation of special equipment acquired for use on a particular order or job should be accrued as the work progresses. The "job method" is especially applicable in shipbuilding, road building, and other construction lines.

**Production Method Illustrated.** For a definite example, assume that a motor is acquired at a total cost, installed, of \$3,000. Estimated net salvage is \$300. The active life of the motor is set at 3,600 running hours, and it is assumed that such life will cover a period of approximately two years. The depreciation cost per working hour under these conditions is 2,700/3,600, or 75 cents. During the first quarter following installation the recorded running time is 500 hours, and the depreciation charge for the period is therefore \$375. The entries are:

Operating Accounts	\$375	
Allowance for Depreciation		\$375

Depreciation for later periods would be similarly calculated. Whether or not the expected running time is utilized within a life of two years is unimportant unless conditions arise which retard use to such an extent that the expected hours of service probably will not be received before re-

tirement is required on account of nonphysical factors. In this event a revision of the schedule of depreciation would be necessary.

**Short-Term Assignment on Production Basis.** Production methods have a limited but important use as a means of securing reasonable spreading of annual charges, computed under the straight-line policy, over monthly or quarterly reports. A pump, for example, is installed at a cost of \$1,100. The unit has an estimated life of ten years and an expected net salvage value of \$100. Under these conditions the annual depreciation on a straight-line basis is \$100. It is also estimated that the number of barrels pumped the first year will be 300,000, and in view of the marked fluctuations in activity between months it is decided to spread the annual charge in the monthly statements in terms of output. During the first two months of operation the records show volume pumped to be 15,000 and 30,000 barrels, respectively. The depreciation charge for the first month is accordingly 5% ( $15,000/300,000$ ) of the annual charge of \$100, or \$5, and the charge for the second month is 10% of the annual accrual, or \$10.

**Depreciation and Income.** Widespread support among business managements is still found for an elastic depreciation policy—a policy which permits liberal accruals in years of large revenues and the recognition of minimum charges in periods of depression. Such treatment of depreciation, although it can be defended as allied to the production methods of apportionment, is in general seriously objectionable. The practice of increasing or decreasing the annual depreciation charge with the movement of earnings is nothing more than a means of adjusting the pattern of reported income in conformity with the desires of the management. Granting that the course of the depreciation of particular assets may be affected by variations in activity or degree of use it does not follow that the amount accruing for the enterprise as a whole can be determined by reference to either gross or net revenue. It is the accountant's function to report actual processes and conditions as clearly and accurately as possible, not to juggle depreciation and other costs for the purpose of painting a picture of income stability that is wide of the facts. That the actual depreciation on plant as a whole is not arrested in any material degree in a "bad year" is made quite apparent by any careful study of the problem, and to take a contrary position in depreciation accounting is therefore perilously close to downright misrepresentation. It may be unpleasant to report a sharp decline in net profits, and still more distasteful to admit the existence of an operating deficit, but attempts to better appearances through understatement of charges cannot be condoned.

Endeavoring to bolster the operating showing in lean years by curtail-

ing maintenance expenditures is a policy allied to that of fitting depreciation accruals to financial conditions, especially where "maintenance" includes piecemeal renewals and replacements of parts. In a special report the Interstate Commerce Commission stated the objections to this practice somewhat as follows:

Attempting to support credit standing by manipulating maintenance expenditures—with resulting misrepresentation of the facts—is an uneconomic policy and may be perilous to investors. Apparent net income is no protection to the investor if procured at the expense of upkeep. Deferring maintenance for a short period may not be a serious matter, but extended over any length of time the practice invites disaster.

Notwithstanding the foregoing comments the familiar public-utility practice of charging operations with a specified percentage of gross revenues, to cover depreciation or depreciation and maintenance combined, is not altogether unreasonable. In this field revenues are usually relatively stable, and experience gives some evidence of the normal relation of depreciation cost to the volume of business. The percentage employed must of course be carefully determined, and should not be arbitrarily adjusted from year to year. And at its best the blanket estimate based on revenues falls far short of an ideal method of measuring depreciation.

**Decreasing-Charge Methods.** The most widely known of these methods of apportionment is the "reducing-balance" plan. Under this method a rate is found which applied to net book value as of the beginning of each period will result in writing the asset down to salvage during the estimated service life. Theoretically the method requires the assumption of a residual value, as it is of course impossible to reduce any amount to zero through the application of a constant percentage to the successive diminishing balances. The formula for computing the required rate may be stated as follows:

$$\text{rate} = 1 - \sqrt[n]{\frac{S}{C}}$$

In this formula  $n$  is the number of periods,  $S$  the salvage value, and  $C$  the cost or other original figure. A machine, for example, costs \$10,000, has an estimated net residual value of \$256, and is expected to last for four

years. The required annual rate in this case is  $1 - \sqrt[4]{\frac{256}{10,000}}$ , which reduces to 6/10 or 60%. The following tabulation shows the computation of the depreciation for the four years:

<i>Year</i>	<i>Remaining Book Value</i>	<i>Depreciation Charge</i>	<i>Total Accrued</i>
1	\$10,000	\$6,000	\$6,000
2	4,000	2,400	8,400
3	1,600	960	9,360
4	640	384	9,744
Salvage	256		

The unreasonableness of the method, particularly where there is a small salvage value and a relatively short life, is made evident by this illustration.

By another arbitrary method of securing a decreasing depreciation charge the fraction of the depreciable value for each year is determined by adding the digits represented in the number of years in the estimated service life as a denominator and taking the remaining life—from the beginning of each period—as the numerator. Thus if the estimated life is five years the denominator of the required fraction is 15 ( $1 + 2 + 3 + 4 + 5$ ), and the charge the first year is  $5/15$  of the total depreciation, the charge for the second year is  $4/15$ , and so on.

Decreasing-charge methods are sometimes supported on the ground that a decreasing depreciation charge added to an increasing maintenance cost will give a fair periodic showing of the total cost of operating plant property. There is not much force in this position. Maintenance cost does tend to increase somewhat with the age of the property, but there is no evidence that such increase tends to match the decline in depreciation charges resulting from the application of any arbitrary decreasing-charge method. There is the further point that the treatment of fluctuating maintenance cost can be improved by careful classification of depreciable assets and short-term spreading, as explained in an earlier chapter.

**Inventory Method.** By the inventory or appraisal method the periodic depreciation charge is determined by comparing the amount of an inventory or valuation of fixed assets at the beginning with the result of an inventory taken at the close of the period. If applied in a thorough-going manner the method is time-consuming and expensive, and it is not likely to result in a consistent extinguishment of cost. It is also likely to bring about the use of appreciation to offset depreciation, a practice justly condemned by all accountants. This does not deny the importance of periodic inspection of all plant assets, and the need for inventory compilations in finding the depreciation of aggregates of short-lived items such as tools and dies. The importance of general plant valuations under special circumstances likewise must be admitted. (See Chapter XIV.)

**Depreciation and Physical Condition.** Allied to the inventory method of measuring periodic write-off is the question of the relation of physical

condition and operating efficiency to accrued depreciation. Among engineers the opinion seems to prevail that the condition of the asset as observed by a competent technician can be translated directly into value terms, and accountants are not impervious to this point of view. In general this position is not reasonable. To have value an asset must be capable of giving service, but it does not follow that the amount expiring from day to day throughout its useful life is precisely gauged by the extent of decline in effectiveness. As has often been pointed out, the change in the level of efficiency of a well-maintained unit of plant usually does not vary greatly from date of acquisition to retirement. An airplane motor, for example, may perform nearly as efficiently on the last trip authorized as on the first flight, and a stretch of water main will carry as large a load shortly before retirement as at any time in its life history. In general it is poor management to attempt to use either structures or equipment that are so deteriorated or worn, or in need of servicing, that they cannot function in a manner in keeping with the normal standards of operation. This fact is recognized in some measure by the appraisers themselves in that they almost invariably find that the plant of an enterprise as a whole has a condition percentage of 85 or better, and are unwilling to set a condition of less than 50 to 60% on units that are admitted to be on the verge of retirement. Incidentally, it is a commonplace that mechanical equipment is seldom at its best until well broken in, but no one argues that the increase in efficiency resulting from adjustment to operating conditions justifies a write-up of value.

A proper depreciation accounting, as has been explained, provides for the charging of cost to operations in an orderly manner not unduly out of line with expired life and receipt of anticipated services, and the course of neither physical condition nor operating effectiveness affords a satisfactory basis of computation.

The absurdity of converting condition percentages directly into value percentages is made more apparent when attention is given to the manner in which such data are compiled in the typical appraisal. The percentage sometimes represents the amount of work or service which the observer estimates may be expected from the unit in use for a particular period as compared with that which a new unit would presumably furnish; and on this basis a condition of 90% or even more may be found for an asset which clearly has most of its service life behind it. In other cases the percentage is found by making a modest deduction from "par" to reflect the fact that it would be possible to improve the condition of maintenance, all other considerations being neglected. In still other situations the appraiser's percentage may result from estimates and physical meas-

urements, more or less carefully made, which seek to determine the precise extent of deterioration or wear at the critical points. This approach is somewhat more reasonable in that it at least throws light on the question of remaining life on a physical basis, but it is inadequate in that it ignores obsolescence and other nonphysical factors. Significant calculations of wear and tear, moreover, are not easily made. Poles and ties may be probed to determine amount of decay, rails may be calipered to find the degree to which the wearing area has been consumed, boilers can be checked and examined for rust or other form of corrosion, but the interpretation of such field data is always a problem. And for many classes of structures or equipment no available method of inspection will furnish dependable evidence of either expired or remaining physical life.

**Depreciation Rates.** Although valuation engineers, public accountants, special committees of trade associations, governmental bodies, and individual corporations have gathered a considerable amount of information bearing upon the service lives of various types of plant assets, there are still no life tables available which can be used by a given enterprise with confidence, and as long as the present tempo of industrial development is maintained the accumulation of wholly satisfactory data—as a basis for forecasting—can hardly be expected. Further, an average life derived from the history of many units, used by numerous concerns under a variety of conditions, is at the best a rather unreliable index of the future life of an individual plant asset in a particular setting. On the other hand the data available are of such a nature as to make it unnecessary for any management to resort to mere guessing in establishing rates of depreciation on its plant property.

One of the most extensive compilations of depreciation rates is that prepared by the Bureau of Internal Revenue in connection with income-tax administration. The data issued by the Bureau, like most other published material on the subject, are in the form of straight-line annual rates applied to cost new, and in the great majority of cases involve the assumption of no net salvage value.

The tabulation on page 299 is intended to serve merely as a very general indication, for a few broad classes of business property, of prevailing opinions as to the depreciation rates usually applicable.

Where assets are acquired in a used condition the appropriate rates range above those applicable to new units. Additions and improvements which will be retired with the major units to which they relate must be depreciated accordingly. In mining, lumbering, and other extractive lines, the useful lives of structures and equipment are limited by the period required to exploit the mineral deposit or other natural resource, and this fact must be recognized in establishing rates and methods of

Class of Property	Rates		Indicated Years of Life
	Range *	Typical	
<b>Buildings and Structures—</b>			
Frame	3½- 6½	4	15-30
Brick, Concrete, etc.	1½- 4	2	25-75
<b>Equipment—</b>			
Construction	10 -33½	20	3-10
Mining	5 -20	10	5-20
Oil and Gas	6½-33½	12½	3-15
Farm	5 -20	8½	5-20
Manufacturing	5 -20	6½	5-20
Power Generation	3½- 8½	5	12-30
Railway	3½- 6½	4	15-30
Aviation	20 -50	33½	2-5
Personal Service	5 -20	10	5-20
Motor Vehicles	16½-33½	25	3- 6
Office	5 -16½	10	6-20
Tools	10 -50	33½	2-10

\* Not including extreme cases.

apportionment. Similarly in other fields rates employed may be affected by the condition of related industries, franchises and private agreements, status of complementary assets, and other limiting factors. Units of plant subject to continuous operation must generally carry higher rates than similar units operated intermittently.

Rates of depreciation in use should be modified whenever changing conditions make this clearly advisable. In general the regulations of the Bureau of Internal Revenue governing depreciation as an income-tax deduction do not permit retroactive rate adjustments. Assume, for example, that a plant unit cost \$10,000 and has been depreciated for five years on a ten-year-life basis, and that current conditions indicate that the remaining life will be only three years. Under these conditions the remaining book value of \$5,000 may be written off for tax purposes (assuming no salvage) in three equal installments, or at a rate of 16⅔% of cost. From the standpoint of sound cost accounting, however, an adjustment of rates should be retroactive so that each remaining year may bear a charge proportionate to the revised estimate of life. Applied to the example this would require the adoption of a revised rate of 12½%.

**Composite Rates.** Some managements still make use of blanket or composite rates of depreciation which are applied to the entire plant property, or to a very broad group of assets, in computing the periodic charge. This is objectionable practice. If the rates employed are merely rough general estimates the results are not likely to be dependable. The use of blanket rates, moreover, tends to discourage the analysis of specific replacements and retirements which is essential to either the validation or modification of the policy in effect.

The calculation of a composite rate—the rate which applied to the



total to be depreciated will yield the amount of the annual charge—may be desired as a means of indicating the significance of the depreciation procedure as a whole, or for some special purpose, even where periodic depreciation is regularly computed in terms of particular units or narrow divisions of plant and the applicable individual rates. For a simple example assume that a concern has four units or like groups of plant assets with depreciation data as follows:

<i>Unit or Group</i>	<i>Depreciation Base</i>	<i>Annual Rate</i>	<i>Annual Charge</i>
1	\$10,000	20	\$ 2,000
2	5,000	50	2,500
3	20,000	25	5,000
4	15,000	3½	500
	<u>\$50,000</u>		<u>\$10,000</u>

The composite rate in this situation is evidently 10,000/50,000, or 20%.

**Illustrative Problem.** As a means of emphasizing some of the points covered in this and the preceding chapter an additional simple example will be dealt with.

#### *Data*

The Edmonton Transportation Co. is engaged in carrying passengers and supplies to and from the new gold field north of Edmonton. On April 1, 1941, the Company buys for cash five twin-motored, all-metal planes at a cost delivered of \$18,000 each, including motors and full equipment. For depreciation purposes the cost of each plane is divided as follows:

Motors.	\$ 6,000
Plane (body, wings, etc.)	12,000

The estimated life of each pair of motors is 4,000 flying hours; the life of each plane (exclusive of motors) is set at three seasons. The active operating season is April 1–November 30.

During the 1941 season the hours of flying time total 15,000, an average of 3,000 hours per plane. In the only serious accident, occurring on October 1, the plane involved, although not burned, was damaged beyond repair. The crash occurred near Edmonton, and the wrecked machine is broken up and the parts worth salvaging are hauled in. The cash cost of this salvaging operation is \$300; parts recovered are taken into stores at an estimated value of \$750. The wrecked plane had been flown 2,500 hours.

#### *Directions*

In journal form present entries covering the purchase of the planes, the accrued depreciation to December 31, 1941, and the retirement of one plane as a result of accident.

*Solution*

EDMONTON TRANSPORTATION CO.  
Journal Entries

(1)

Motors—Cost . . . . .	\$30,000	
Planes—Cost . . . . .	60,000	
Bank Account . . . . .		\$90,000
To record purchase of five planes		

(2)

Repair Parts . . . . .	750	
Motors—Allowance for Depreciation . . . . .	3,750	
Planes—Allowance for Depreciation . . . . .	3,000	
Crash Losses . . . . .	10,800	
Motors—Cost . . . . .		6,000
Planes—Cost . . . . .		12,000
Bank Account . . . . .		300
To record retirement of wrecked plane, salvage cost and recovery, and loss suffered. Accrued depreciation attaching to motors 2,500/4,000 of cost		

(3)

Operating Accounts . . . . .	22,500	
Motors—Allowance for Depreciation . . . . .		22,500
To accrue depreciation on motors for the season: 15,000 hours flown of a total estimated useful life of 20,000 hours; 15,000/20,000 of cost of \$30,000		
Operating Accounts . . . . .	19,000	
Planes—Allowance for Depreciation . . . . .		19,000
To accrue depreciation on planes for season: one-third of cost in case of four planes used through full season \$16,000; 75% of one-third of cost for plane used for three-fourths of season		

*Comments*

In recording the retirement the charges to the allowance accounts are made in anticipation of the proper credits for the entire season.

QUESTIONS

1. Outline the principal methods of spreading the depreciable amount over service life.
2. Illustrate the straight-line method. What can be said in support of this method of apportioning plant cost?
3. Discuss pro and con the principal theoretical objection to straight-line depreciation.
4. What is the essential characteristic, from the standpoint of operating charges, of all the interest methods? What are the principal objections to all interest methods?
5. Explain and illustrate the "annuity method." Discuss this plan of depreciation apportionment critically.
6. With illustrative entries explain and discuss the "sinking-fund method."
7. "The great advantage of the sinking-fund policy of handling depreciation is the reduction in the burden placed on revenues which is thereby secured." Discuss.
8. "To charge revenues with depreciation and at the same time require the accumulation of a fund to replace the property or retire the securities issued to finance

the original construction is unreasonable in that it places a double burden on customers." Discuss.

9. Explain the "compound-interest method." What advantage does this method have over the sinking-fund plan?

10. Explain and illustrate the production methods of spreading depreciation. Under what circumstances are such methods particularly appropriate?

11. "The cost of plant is chargeable to the product resulting from the use of plant and it follows that when the property is not in actual use there is no depreciation." Discuss.

12. Criticize the policy of manipulating the depreciation charge to minimize the fluctuations in earnings. Is it good practice to restrict maintenance with falling revenues?

13. Explain and criticize the "reducing-balance" method of spreading depreciation. The inventory method.

14. Discuss the use of condition or efficiency percentages in measuring accrued depreciation.

15. What is meant by a "rate" of depreciation? Indicate the limitations of published rates.

16. Illustrate the computation of a "composite" depreciation rate.

## XIII

### DEPRECIATION OF UTILITIES

**Retirement Policy versus Accrual Policy.** In the discussion of depreciation in the preceding pages the position has been taken that the general policy of accruing this cost in terms of particular units of plant and estimates of service life is thoroughly sound and is applicable to all lines of business. At this point attention should be called to an alternative theory of approach, strongly supported by valuation engineers and many accountants in the public-utility field, which may be referred to as the "retirement policy." The advocates of this policy usually admit that depreciation is an unavoidable cost of operation and must be taken into account in some manner, but they insist that all accrual methods are highly "theoretical" and are almost sure to give unreasonable results, particularly when applied to railways and other types of utility property.

The retirement policy consists at bottom of the extension to the fixed assets of the usual methods of dealing with current assets and related operating charges. It has two main interpretations. Under one procedure the costs of plant units less net salvage are charged to operation in full on the occasion of elimination from service. This is essentially the "one-hoss-shay" theory of plant value; it assumes that there is no depreciation until the finish line is reached. Under another procedure the costs of the first acquisitions and installations are retained without adjustment except in the case of improvements and extensions, and the costs of all replacements in kind are charged directly to operation as made. By implication at least this procedure supports the doctrine that the investment in plant is subject to increase or decrease only when there has been a change in efficiency or productive capacity. The first of these is the better, particularly in that it results in plant accounts which show at all times the cost of the elements actually in use. The other procedure, with changing prices, fails to meet this essential requirement of property accounting.

There are a number of variations to be found in practice. The rules of the Interstate Commerce Commission governing piecemeal renewals and betterments of railway track represent a modification of the second in-

terpretation. (See Chapter IX.) The same concern sometimes makes use of the retirement policy in connection with certain classes of plant assets and accrues depreciation on other kinds of property. It may be noted that the inventory method of handling hand tools and other small and relatively short-lived types of equipment, not uncommon throughout the industrial field, represents a minor application of the retirement procedure.

The fact that the public-utility field is the stronghold of the retirement policy is readily explained. In the first place this field is characterized by complex, continuous plant installations, made up of a great number of interrelated elements such as rails, ties, poles, and pipe sections. Under such conditions the distinction between maintenance and depreciation is not easily drawn, and special difficulties arise in estimating service lives. Because of the emphasis on investment and property value in rate regulation, in the second place, utility managements are naturally reluctant to encourage an accounting practice that results in building up large credit balances which are subject to interpretation as deductions from property. The traditional position of the telephone companies is of interest in this connection. Almost alone among the public utilities the leading telephone managements are staunch supporters of the accrual policy in so far as the determination of periodic operating charges is concerned, but are not sympathetic with the view that reserves for depreciation are deductible in finding fair value.

Among utility regulatory agencies the trend of opinion seems to be away from retirement accounting for depreciation. This is especially noticeable among state public-service commissions and the newer Federal commissions. The general attitude of the Interstate Commerce Commission, moreover, is now unfavorable to the retirement policy, despite the established rules with respect to renewals and betterments referred to above which seem to indicate the contrary.

Industrial managements have almost universally adopted the accrual policy in one form or another, and the regulations of the Bureau of Internal Revenue controlling depreciation charges for income-tax purposes represent a thoroughgoing acceptance of this policy. Most public accountants, needless to say, favor systematic accrual of depreciation for virtually all enterprises and types of plant property.

**Retirement Policy—Arguments Pro.** The case for the retirement policy as seen by its supporters is summed up by the following statement adapted from a report issued by the Interstate Commerce Commission following a special investigation of the subject:

A railway or other utility property is an integrated combination of a large number of separate elements and must be considered in its entirety in dealing with the problem

of depreciation. Most of the component units, it is granted, are worn out in service or are superseded from time to time by improved substitutes but there is no loss of serviceability in the composite property, and hence no depreciation, so long as adequate maintenance is provided. The property may indeed be worth more to a prospective purchaser when seasoned by long-continued use than when new. It follows that no reserve whatever is needed to protect the integrity of the investment. Where the plant as a whole has "struck its gait" the retirements of most classes of component elements are roughly equal in amount from year to year and hence there is no need in such cases for an equalizing reserve. In the case of the few major units of property subject to retirement as a whole the creation of a reserve may be desirable as a means of spreading depreciation and thus avoiding placing a disproportionate burden upon the operating expenses of any one period. But such a reserve should be based on judgment, not on mathematical calculation or formula. The ascertaining of service lives, upon which "theoretical depreciation charges" are dependent, is wholly impracticable. Straight-line depreciation is particularly unsatisfactory in that it results in the accumulation of a huge and unnecessary reserve which in time will fluctuate around fifty per cent of the recorded investment. Such a reserve is a useless burden on both utility and patrons. A reserve is not necessary to cover losses arising from unexpected or premature retirements due to the introduction of more efficient elements as such losses should be spread over the future rather than the past so that they may be borne by those who benefit from the improvement.

On the technical side the proponents of the retirement policy also stress the desirability of eliminating the troublesome calculations and procedures associated with the use of depreciation reserves and the advantage of determining periodic charges on the basis of actual transactions as opposed to estimates and conjectures.

**Retirement Policy—Arguments Con.** The foregoing line of argument is not at all convincing. In the first place the position that an integrated plant has suffered no depreciation provided it is well maintained and able to function effectively is entirely unreasonable. Plant costs, as explained earlier, represent essentially prepayments on account of technical services, and should be absorbed in operating charges through the period of time in which such services are received and utilized. This fact is quite apparent when the plant under consideration is a single operating unit. Assume, for example, a public-utility enterprise operating a single taxicab subject to complete replacement once every three years. Assume further that monthly income statements are prepared for this enterprise. If the retirement policy is applied here this means that no depreciation cost (aside from the charges covered by maintenance) is recognized until the thirty-sixth month—that as far as plant is concerned it has cost nothing to carry the passengers of the preceding thirty-five months. Such treatment is clearly absurd. The cost of the first cab should be equitably spread over the period of its use, and each succeeding unit should be similarly dealt with.

But the proponents of the retirement policy interrupt at this point

to call attention to the difference between the conditions of this example and those found in elaborate railway plant consisting of a large number of station buildings, repair shops, bridges, towers, trestles, and other structures; many miles of track made up of a myriad of rails, ties, and other elements; and numerous passenger cars, freight cars, locomotives, shop equipment, etc. They also point out that such a plant is built up gradually over a period of years and hence is maintained and renewed piecemeal instead of being replaced as a whole from time to time. The question then takes this form: is the accrual policy, admittedly sound when applied to a single plant unit, rendered entirely inapplicable by extent of plant, varying service lives of component elements, and other complexities? A negative answer seems to be justified. It is a common error of human thinking to assume that essential principles are inoperative wherever conditions are sufficiently involved to obscure their operation. Actually there are no basic differences between the problems of accounting for revenues, costs, and asset balances in the case of the local taxicab service and such problems as they arise in a transcontinental railway. Each business may be viewed as a continuing enterprise; each requires the use of plant elements not fully consumed in the period of acquisition; each faces both the difficulty of distinguishing between ordinary maintenance and adjustment of plant cost and the necessity for care in analyzing the effects of additions, improvements, and retirements. The simple situation requires less analysis and clerical work than the complex; otherwise they are on all fours.

As pointed out in the preceding chapter, change in physical condition and capacity to serve do not—alone—afford a basis for estimating the periodic depreciation accrual. And it should be apparent that the fact that either a particular unit or an entire layout of plant is capable of functioning satisfactorily does not demonstrate that no depreciation has been suffered. All units of property are able to render some service up to the very date of retirement, and it is a commonplace of business experience that in many cases there is little impairment of efficiency and capacity throughout useful life. An old station building, for example, may be just as useful as a new building (although maintenance is likely to run somewhat higher). At the same time it must be recognized that business property seldom approximates the kind of record achieved by the fabled “one-hoss shay.” Moreover, unimpaired physical *capacity* at a particular point does not prove the existence of unimpaired power to produce *income* over a period. Increased maintenance charges and decreased working hours often accompany increasing age, and in the competitive field at any rate the price of the service rendered tends to decline as the property becomes older. The old and slow passenger boat, for

example, often has high maintenance and fuel costs, and usually operates on a relatively low schedule of fares.

The suggestion that investment is unimpaired in a used property, and that it may be more valuable to a purchaser than a new plant of the same type, need not be taken very seriously. There is a confusion here between the value of a *business enterprise* as a going concern and the problem of depreciating *physical plant*. The enterprise as a whole may be worth more than even the cost new of its physical assets due to the presence of intangible factors (see Chapter XIX), but it does not at all follow that there is no accrued depreciation of plant. Increase in intangible value does not offset expiring cost of property. For plant as such any intelligent purchaser will unquestionably prefer new construction and new equipment as opposed to used or "seasoned" plant. Further, as security for funded debt a fleet of new locomotives, for example, is obviously superior to an equal number that have been in use for a period of years.

The claim that the retirement policy gives reasonably uniform annual charges in the case of a large, diversified property which has "struck its gait" was found by the Interstate Commerce Commission not to be confirmed by the operating statistics available, and this conclusion may be substantiated by an examination of the course of retirements for almost any public-utility enterprise. Considerable irregularity of retirements is to be expected, even in the case of the extensive, seasoned plant, in view of the varying sums available for replacement coupled with the fact that the particular month or year of retirement often depends upon managerial decision.

The problem raised by the difficulty of estimating service life was considered in Chapter XI. The contentions that straight-line depreciation results in useless reserves and that losses due to premature retirements should be capitalized are discussed a little later.

Those opposing accrual methods of dealing with depreciation lay great stress on the importance of maintenance as a means of preventing a plant from depreciating, and obviously have in mind a liberal conception of maintenance. In this connection it should be made clear that if piecemeal renewals are charged directly to operations under the guise of repairs the inclusion of an additional charge representing a full accrual of depreciation results in a padding of charges. Here, it is believed, is one of the main sources of the persistent objections to accrued depreciation. The proper remedy, however, lies not in suppressing accrued depreciation accounting but in the development of a narrower definition of maintenance and better procedures for dealing with transactions affecting plant costs. (See the discussion of plant accounts in Chapter IX.)



**Retirement Policy under Ideal Conditions.** As a means of throwing further light on the practical applicability of the retirement policy it may be helpful to outline the conditions ideally suited to the adoption of this plan. The requirements are: (1) acquisition of property in equal installments equally spaced in time; (2) number of periodic increments equal to service life of each unit or batch acquired; (3) replacements strictly in kind, with no change in costs; (4) no additions or extensions except as provided under (1) and through replacements; (5) no retirements except in connection with renewals. Another desirable condition is that of a relatively short life for the individual unit. Assume, for example, that on January 1, 1938, the M Co. begins a delivery business with one car which costs \$800. A year later the business has expanded to a point which warrants the purchase of an additional car, the cost again being \$800; and at the beginning of each succeeding year a new car is acquired at the same price. At the close of business on December 31, 1940, and at the same date each year thereafter, one unit is retired from service, the net proceeds in each case being \$50. The following tabulation compares the results, under these assumed conditions, of the retirement policy and straight-line accrual for a period of five years:

Year	Plant Cost *	Depreciation Charge		Balance Accrued *	
		Retirement Policy	Straight-Line Accrual	Retirement Policy	Straight-Line Accrual
1938	\$ 800	\$-0-	\$250	\$-0-	\$250
1939	1,600	-0-	500	-0-	750
1940	1,600	750	750	-0-	750
1941	1,600	750	750	-0-	750
1942	1,600	750	750	-0-	750

\* After booking of retirement on December 31.

From the third year on, evidently, the two policies give the same charge to operation, \$750, although under one plan this amount represents the cost less salvage of the unit retired at the end of the year while under the other it is the amount of the annual depreciation accrued on the three units in use during the year on the basis of a three-year service life for each. The resulting book values are not the same at any time from the end of the first year on. The application of the retirement policy, which ignores accrued depreciation, yields a book value throughout of the unadjusted cost of the units in service. The use of straight-line accrual gives year-end net book values of \$550 for 1938, and \$850 for each year thereafter.

The fact that even under ideal conditions the retirement policy fails to provide for the absorption of any part of plant cost prior to date of

the first replacement emphasizes the essential weakness of the scheme. The effect is clearly an overstatement of net income in the early years, an undesirable condition from every standpoint.

**Depreciation and Rate Regulation.** Many public-utility managements, as has been indicated, object to the thoroughgoing use of the straight-line method—or any other scheme of accrual—as a means of determining periodic depreciation charges, and there is general unwillingness on the part of the utilities to accept the view that depreciation reserves as booked are deductible in finding fair values for purposes of rate regulation. The commissions and courts in their turn have usually shown scant respect for the accrual procedure and recorded reserves. This unfriendly attitude toward accrued depreciation originates, as already suggested, in the unfortunate overemphasis on property value as such which has characterized rate controversies from the outset. With interest focused on valuation as of a particular date the tendency has been to rely upon appraisals rather than accounts as the principal means of measurement, and this has given prominence to estimates of cost of reproduction and “actual” or “observed” depreciation.

In estimating “actual” depreciation the appraiser is prone to place great weight on physical condition and operating efficiency and give little attention to either elapsed or prospective service life. The result is almost invariably a smaller amount of accrued depreciation than that calculated by the accountant in his effort to spread the cost of plant over a period of use limited sharply by factors which include obsolescence and other external influences. Some appraisers in the utility field even go so far as to restrict the estimate of depreciation to “deferred maintenance”—the estimated expenditure necessary to restore the property under consideration to top-notch operating condition. It is not surprising, therefore, that the appraisal approach is popular with managements anxious to make a favorable showing with respect to values of property. The considerable influence of the appraiser’s point of view upon the regulating authorities is due in part to the vigor with which it has been presented and in part to the difficulty of demonstrating effectively either the reasonableness of accrued reserves or their place in the general problem of estimating fair value.

**Are Reserves Deductible in Rate Cases?** This controversial question deserves special attention. The M Power Co., for example, begins business with a bona-fide investment in plant of \$1,000,000.00, and a working capital of \$100,000.00. The Company adopts a system of accounting under which all adjustments of plant cost, including those involved in so-called maintenance projects, are fully reflected in the plant accounts. Depreciation is systematically accrued period by period in terms of a

detailed classification of plant cost and carefully estimated periods of service. The estimated life of the property is twenty years. For the purpose of maintaining a constant rate of return on investment from year to year, and thus preserving equity between the enterprise and the customers of each period, the compound-interest method of apportionment is employed. The amount of the charge for the first year, at a 6% earning rate, is \$27,184.56. The level of prices is assumed to remain unchanged. Under these conditions it seems clear that ideal regulation would permit the Company to collect from its patrons revenues sufficient to cover the depreciation charge as well as other operating costs, together with a fair return on the average investment for the year. It seems equally clear that if revenues on this basis are actually received a portion of the investment in plant has been recovered and the equitable rate base, *as far as plant is concerned*, is reduced to \$972,815.44. It does not follow, however, that the rate base *as a whole* is reduced or that the scale of charges to patrons should be revised. If no replacements are as yet required and no additions or extensions are feasible, the amount of recovered plant cost may be treated as a replacement fund or returned to the investors. If the fund is established the amount thereof should be included in the rate base, which then remains intact at the original figure of \$1,100,000.00, computed as follows:

Cost of plant . . . . .	\$1,000,000.00
Accrued depreciation . . . . .	27,184.56
	<hr/>
Remaining investment in plant . . . . .	\$ 972,815.44
Special fund . . . . .	27,184.56
	<hr/>
	\$1,000,000.00
Working capital . . . . .	100,000.00
	<hr/>
Rate base . . . . .	<u>\$1,100,000.00</u>

In discussions of this question the mistake is often made of assuming that converted plant cost retained as a fund is not a part of the property devoted to serving customers and hence is not to be included in fair value. If the relations established between the business, the patrons, and the regulating body are such that the investors can be said to be charged with responsibility for the indefinite maintenance of the flow of service, without impairment, it is evident that funds accumulating for replacement purposes are an integral element in the investment committed to the undertaking and are therefore on the same level as the unexpired cost of plant as far as measurement of the rate base is concerned.

During the second year the depreciation charge is \$28,815.63 (see discussion of interest methods in preceding chapter). Revenues (including

all fund income) are again sufficient to cover depreciation, all other costs, and fair return. At the end of the year minor retirements occur amounting to \$3,500.00 (with no net salvage value) and these elements are immediately replaced in kind at a cost of \$3,500.00. It is assumed that net income has been distributed in full and that no additional investment has been made. The equitable rate base is still \$1,100,000.00. The computation is as follows:

Cost of original plant . . . . .		\$ 996,500.00
Cost of replacing elements retired . . . . .		3,500.00
		<u>\$1,000,000.00</u>
Accrued depreciation—total . . . . .	\$56,000.19	
Retirements . . . . .	3,500.00	52,500.19
		<u>52,500.19</u>
Remaining investment in plant . . . . .		\$ 947,499.81
Special fund—		
Balance at beginning of year . . . . .	\$27,184.56	
Amount added during year . . . . .	28,815.63	
		<u>\$56,000.19</u>
Expended on plant account . . . . .	3,500.00	52,500.19
		<u>\$1,000,000.00</u>
Working capital . . . . .		100,000.00
		<u>\$1,100,000.00</u>
Rate base . . . . .		<u><u>\$1,100,000.00</u></u>

The treatment of the income earned on the replacement fund as an element of the total revenue of the enterprise follows the interpretation of the fund itself as a utility asset. In the example, it should be added, the special fund is assumed to earn at the fair rate of return, 6%, assumed for the undertaking as a whole.

Some would argue that the foregoing computations in themselves show that it is not necessary to deduct accrued depreciation from plant cost in finding fair value provided the balance in the replacement fund is not taken into account in the determination. The main answer to this suggestion is that it is unwise to ignore the essential elements of accrued depreciation and resources representing converted plant merely because they match in dollar amounts. The conditions of an actual situation, moreover, cannot be expected to conform precisely to those assumed here.

The policy of using an interest method of spreading depreciation coupled with the accumulation of a replacement fund based on recovered plant cost does not in itself ensure the earning each year of the established rate of fair return on the rate base as computed above. If this result is to be obtained it is necessary to assume that the capacity of the property as a whole to produce revenue remains unimpaired, without taking into account the earning power of the special fund, and that the

total of operating expenses exclusive of depreciation is the same from year to year. This point may be emphasized by the following tabulation:

Year	Utility Earnings *	Fund Income	Depreciation Charge	Net Income	Rate Base	Rate of Return
First	\$93,184.56	\$ -0-	\$27,184.56	\$66,000.00	\$1,100,000.00	6%
Second	93,184.56	1,631.07	28,815.63	66,000.00	1,100,000.00	6%

\* After deduction of all charges other than depreciation.

The increase in the depreciation charge in the second year, evidently, is matched by the income earned on the fund, and this leaves the earning power of the property as a whole unchanged.

If the amount of recovered plant cost not required currently for replacements were returned to the investors each year the total rate base should be correspondingly reduced. Thus at the end of the first year, under this assumption, the amount on which the Company is entitled to earn for the future is found as follows:

Cost of original plant . . . . .	\$1,000,000.00
Accrued depreciation (and amount returned to investors) . . . . .	27,184.56
	<u>\$ 972,815.44</u>
Working capital . . . . .	100,000.00
	<u>\$1,072,815.44</u>

The base at the end of the second year would be similarly determined. Again, however, there need be no adjustment of the scale of charges to patrons in order to maintain the rate of return at the established level provided the conditions as to output and operating costs are as assumed above. This fact is brought out in the tabulation below:

Year	Utility Earnings *	Depreciation Charge	Net Income	Rate Base	Rate of Return
First	\$93,184.56	\$27,184.56	\$66,000.00	\$1,100,000.00	6%
Second	93,184.56	28,815.63	64,368.93	1,072,815.44	6%

\* After deduction of all charges other than depreciation.

(Another approach would be to consider the money returned to investors as an advance or "loan." Under this view the loan may still be reckoned in the rate base and "interest" on such loan should be charged at 6% and included in utility income.)

For a third variation assume that the situation is such that all converted plant funds not needed for replacement can be expended at the year-end for additions and extensions to plant and that such added investments are capable of earning the established rate of 6%. Assume, further, that the new plant elements have the same life as the original facilities and are subject to depreciation by the same method. With

these conditions the rate base is determined at the end of the first year as follows:

Cost of original plant . . . . .	\$1,000,000.00
Accrued depreciation . . . . .	27,184.56
	<u>\$ 972,815.44</u>
Cost of new facilities . . . . .	27,184.56
	<u>\$1,000,000.00</u>
Working capital . . . . .	100,000.00
	<u><u>\$1,100,000.00</u></u>

The depreciation charge for the second year is the sum of the charge applicable to the original plant, \$28,815.63, and the initial charge on the new facilities based on a twenty-year life and a 6% rate, \$739.00, a total of \$29,554.63. And the computation of the base at the end of the year is as follows:

Cost of plant at beginning of year . . . . .	\$1,027,184.56
Cost of facilities acquired at end of year . . .	\$29,554.63
Cost of elements retired at end of year . . .	3,500.00
	<u>26,054.63</u>
	<u>\$1,053,239.19</u>
Accrued depreciation—total . . . . .	\$56,739.19
Retirements . . . . .	3,500.00
	<u>53,239.19</u>
Remaining investment in plant . . . . .	\$1,000,000.00
Working capital . . . . .	100,000.00
	<u><u>\$1,100,000.00</u></u>
Rate base . . . . .	<u><u>\$1,100,000.00</u></u>

The tabulation below indicates the situation with respect to earnings and rate of return. The utility earnings in the second year are increased to cover the depreciation of \$739.00 applicable to the new facilities acquired at the end of the first year and the net return at 6%, \$1,631.07, on the cost of such facilities.

Year	Utility Earnings *	Depreciation Charge	Net Income	Rate Base	Rate of Return
First	\$93,184.56	\$27,184.56	\$66,000.00	\$1,100,000.00	6%
Second	95,554.63	29,554.63	66,000.00	1,100,000.00	6%

\* After deduction of all charges other than depreciation.

The conditions assumed here for purposes of illustration—uniform earning power of all elements, constant expenses other than depreciation, revenues just sufficient to yield established rate of return, identical lives for original plant elements and periodic additions, replacements in kind and at no change in costs, disbursement of entire net profits—are evidently highly artificial. Plant assets and replacement funds do not ordinarily yield equal rates of return; variations in periodic revenues and expenses are a commonplace in the utility field as elsewhere, even under

the most favorable conditions of regulation; changes in the technical character of plant and in plant costs are more or less continuous. The computations here required, moreover, only faintly suggest the difficulties involved in attempting to apply compound-interest calculations in accruing depreciation on the many units and classes of property involved in a large utility enterprise. Consideration of this simplified and imaginary case, nevertheless, should suffice to demonstrate that there is nothing inherently improper or unfair in deducting depreciation reserves which have been carefully determined from gross plant values in the process of estimating the rate base.

**Are Straight-Line Reserves Excessive?** One of the contentions of those opposing the accrual policy in the public-utility field is that such policy, particularly when manifested in the straight-line method, results in the accumulation of excessive reserves. It is pointed out that in the large property acquired over a period of years and composed of a great number of elements with varying service lives the application of straight-line depreciation may eventually bring about a continuous, "unused" reserve balance of around fifty per cent of the cost of the property in service, and it is claimed that the inherent impropriety of such accounting is amply demonstrated by this tendency.

What merit, if any, is there in this position? The attempt to answer this question may well begin with consideration of a simple example. The R. Cab Co. begins business at the first of the year with ten units of equipment which cost \$1,000 each. The estimated life is four years, and it is assumed that there will be no net salvage value. At the end of each year of operation ten new units are acquired at the same cost per unit, \$1,000. At the end of the fourth year and each year thereafter ten units are retired. From the beginning of the fourth year on, in other words, the Company operates forty units, ten of which are new, ten one year old, ten two years old, and ten three years old. The annual revenues of the enterprise, and all operating expenses other than depreciation, vary in proportion to the units operated, which means that these factors are constant from the fourth year on. All funds covering expired equipment cost are utilized in buying new units. The following tabulation shows the plant account and depreciation under these conditions, assuming the straight-line method is employed:

Year	Cost Balance *	Depreciation Charge	Reserve Balance *	Net Book Value *
1	\$10,000	\$ 2,500	\$ 2,500	\$ 7,500
2	20,000	5,000	7,500	12,500
3	30,000	7,500	15,000	15,000
4	30,000	10,000	15,000	15,000
5	30,000	10,000	15,000	15,000

\* At end of year, after retirements have been booked but before year-end additions have been taken into account.

From this it appears that beginning with the end of the third year the balance of the reserve actually does amount to 50% of year-end plant balances, before additions, and under the conditions assumed this relationship will persist indefinitely. (If compared with the cost of property in use at the beginning of the following period the reserve balance is found to be  $37\frac{1}{2}\%$ .) It does not at all follow, however, that the reserve is either excessive or "useless." The reserve account, it should be remembered, merely measures the estimated expired cost of plant, and unless the estimate is unreasonable the balance is not excessive. If on the average the service lives of a group of plant units are half exhausted, and no net salvage is anticipated, there is nothing improper in a total depreciation accrual of 50% of cost. The notion that a reserve balance is useless where it continuously outruns retirements is quite unwarranted. If accrued depreciation is carefully determined there should in all cases be a balance in the contra account as long as there are depreciated units represented in the plant cost account. In other words, the cost of units eliminated will never "catch up" to the estimated expired cost except where accrued depreciation is inadequate or where all units are retired.

But suppose it be granted for the sake of argument that those who are talking in terms of "excessive and useless reserves" are thinking not of the contra valuation account as such, to which accrued depreciation is credited and costs of units retired are charged, but of the funds made available through revenues which may be viewed as representing recovered cost of plant. Is there merit from this standpoint in the objection to straight-line depreciation?

As explained earlier, the extent of funds made available to cover depreciation or any other cost depends upon the volume of revenue and is in no way affected by the method of accounting for depreciation that is being employed. It is true that if revenues are sufficient to cover all costs an element of the current assets flowing from revenues may be viewed as making good expired plant cost. It is also true that if this element is not needed to expand active working capital, to provide a backlog of funds as a safety factor, to retire obligations, to acquire additional plant facilities, or for any other immediate operating or financial purpose, it becomes available for accumulation in a special fund or for return to the investors. But even the existence of unneeded funds does not mean that operating charges have been excessive. It is a commonplace of business experience that a used plant represents a smaller investment than a new plant, and it should be clear that where a business enterprise cannot make use of recovered plant cost in carrying on its activities a part of the investment as a whole is liberated. This condition is a major feature in wasting enterprises, and occasionally arises in



other lines. In other words, the presence of capital funds on which a liquidating dividend might well be based does not in itself demonstrate an improper depreciation policy.

The absurdity of the opinion that a depreciation-reserve balance is clearly excessive and unnecessary if it is continuously maintained at a level of around fifty per cent of the cost of property in use becomes fully apparent when it is found that the existence of such a reserve is no indication whatever that a corresponding amount—or indeed any amount—of disposable funds is available. If the R Cab Co., for example, has in the past received and is for the future assured revenues just sufficient to cover all expenses including a depreciation charge of \$10,000 per year, was originally provided with adequate working capital, and can operate only forty units to advantage, it will be in position from the fourth year on to finance all plant requirements without providing additional capital, and will have no need for funds representing converted plant values. Analysis of the Company's situation, however, discloses the fact that *no such funds are available* at the end of any year throughout its history. This is shown by the following series of tabulations consistent with the above data, but ignoring working capital and assuming that net profits, if any, are made the basis of dividend disbursements at the end of each year.

<i>Beginning of First Year</i>			
Cost of plant . . . . .	\$10,000	Capital . . . . .	\$10,000
	<u>          </u>		<u>          </u>
<i>Beginning of Second Year</i>			
Cost of plant . . . . .	\$20,000	Capital . . . . .	\$17,500
		Reserve for depreciation . . . . .	2,500
	<u>          </u>		<u>          </u>
	\$20,000		\$20,000
	<u>          </u>		<u>          </u>
<i>Beginning of Third Year</i>			
Cost of plant . . . . .	\$30,000	Capital . . . . .	\$22,500
		Reserve for depreciation . . . . .	7,500
	<u>          </u>		<u>          </u>
			\$20,000
	<u>          </u>		<u>          </u>
<i>Beginning of Fourth Year</i>			
Cost of plant . . . . .	\$40,000	Capital . . . . .	\$25,000
		Reserve for depreciation . . . . .	15,000
	<u>          </u>		<u>          </u>
	\$40,000		\$40,000
	<u>          </u>		<u>          </u>
<i>Beginning of Fifth Year</i>			
Cost of plant . . . . .	\$40,000	Capital . . . . .	\$25,000
		Reserve for depreciation . . . . .	15,000
	<u>          </u>		<u>          </u>
	\$40,000		\$40,000
	<u>          </u>		<u>          </u>

Summarizing, it may be stated that expenditures for additional equipment acquired during the first three years, totaling \$30,000, are financed

by increasing capital in the amount of \$15,000 and by utilizing all the funds covering expired plant cost. From the fourth year on there is no change in the situation under the assumed conditions; no new capital is required, and the plant funds provided by revenues are fully absorbed in making replacements.

**Straight-Line Reserves and Equitable Periodic Rates.** From the standpoint of public-utility regulation there remains the important question of maintaining equity between the enterprise and the investors therein on the one hand and the consumers of service, on the other, year by year. How does straight-line depreciation fare from this standpoint? In the above discussion of the deductibility of reserves the compound-interest approach was employed in accruing depreciation, and it was implied that the application of the straight-line plan would not give ideal results under the conditions assumed. The weakness of straight-line apportionment in this connection lies in the unreasonable relationship that the method tends to produce between periodic net income and remaining investment in plant. To illustrate this feature, assume that the earnings of the R Cab Co. for each year, exclusive of depreciation, amount to \$2,885.91 per each ten units of equipment in operation. With such an earning power, and other conditions as outlined in the preceding section, the application of straight-line depreciation affects rate of return for the first five years as shown by tabulation (1) below. With the same conditions, and the compound-interest method of apportionment at a 6% rate, the results are as shown in tabulation (2) below. (In the tabulation of the "earnings" column the base figure used is \$2,885.9149.)

(1)					
Year	Net Book Value *	Earnings †	Depreciation Charge	Net Income	Rate of Return ‡
1	\$10,000.00	\$ 2,885.91	\$ 2,500.00	\$ 385.91	3.86%
2	17,500.00	5,771.83	5,000.00	771.83	4.41%
3	22,500.00	8,657.74	7,500.00	1,157.74	5.15%
4	25,000.00	11,543.66	10,000.00	1,543.66	6.17%
5	25,000.00	11,543.66	10,000.00	1,543.66	6.17%
(2)					
Year	Net Book Value *	Earnings †	Depreciation Charge	Net Income	Rate of Return ‡
1	\$10,000.00	\$ 2,885.91	\$ 2,285.91	\$ 600.00	6%
2	17,714.09	5,771.83	4,708.98	1,062.85	6%
3	23,005.11	8,657.74	7,277.43	1,380.31	6%
4	25,727.68	11,543.66	10,000.00	1,543.66	6%
5	25,727.68	11,543.66	10,000.00	1,543.66	6%

\* At beginning of period.

† After all deductions but depreciation.

‡ On net plant balance, at beginning of year, without reference to working capital.

The first table shows that in order to cover straight-line depreciation in the first three years and obtain a rate of 6% on the net book value of plant as of the beginning of each of these years it would be necessary to

increase the scale of charges to customers. It is also shown that after the third year it would be necessary to lower charges in order to avoid earning a rate in excess of 6%. Such adjustments, evidently, would not be strictly equitable if a changing body of customers were assumed. The second table shows again that where revenues and expenses other than depreciation are stable for each dollar of plant cost, a constant rate of return is secured by the use of the compound-interest method. From the fourth year on it is noticeable that the total depreciation charge and resulting net income are the same under each plan, and that the straight-line method also gives a stable rate of return after the third year.

The general conclusion to be drawn is that the thoroughgoing use of straight-line depreciation in public-utility regulation tends to encourage a high level of charges to customers in the early years of the life of a particular property and a relatively low scale in later years. This effect is most pronounced in situations where the plant consists of a small number of long-lived units and possibilities of expansion are limited; it is less serious where the property is made up of many short-lived units acquired at different points of time. The objectionable influence of straight-line depreciation is also minimized by the fluctuating revenues and variable expenses characteristic of actual situations. As shown by the foregoing artificial example the effect of the straight-line method may approximate that of the compound-interest method when a plant has reached a point of balance with respect to additions and retirements. On the whole the advantages of straight-line depreciation as a practical device in dealing with the problem of rate regulation outweigh the objections.

**Capitalization of Losses.** In the public-utility field the theory persists that unusual losses due to premature retirements on account of obsolescence and other special causes should be capitalized and recovered through charges to customers in later years. This doctrine is based upon the conception of a utility enterprise as a business which as a result of rate restrictions is not in a position to take advantage of speculative opportunities and hence, in fairness, must be guarded against unusual losses. No doubt there is some force in such a conception of the regulated enterprise. On the other hand the history of regulation amply demonstrates that the investment in a utility enterprise is in no sense guaranteed. It is a commonplace that a public utility, much like concerns in the competitive field, is subject to serious losses both during development and at later stages, and the commissions and courts have never shown any marked disposition to take effective steps to shift such losses to the shoulders of the consumers. It should be recognized, further, that even when the regulating authority under special circumstances permits the

loss arising from early retirement of property or other causes to be included in the formal rate base this by no means assures the enterprise that the amount will actually be covered by future revenues. Regulation can do no more here than set rates and restrict competition; it cannot prevent the falling off of volume due to shrinking demand resulting from business depression, development of substitutes, and other causes. The view that retirement losses can be construed as costs assignable to future revenues is therefore subject to serious limitation even in fields where rates are regulated.

That retirement losses should not be capitalized is the prevailing opinion in competitive industry. In some quarters, however, the claim is advanced that when a unit of plant that might be continued in use is replaced with an improved, more efficient type the undepreciated cost of the old unit, less salvage, should be treated as a part of the cost of the new. The elimination of existing facilities capable of rendering service, it is pointed out, is justified only when the superiority of the new facilities over the old—in greater capacity, lower charges per unit of output, or both—is so marked that the remaining depreciable value of the old property is more than covered; and it is argued that this furnishes a logical basis for the treatment of such unabsorbed value as charges to the revenues produced by the improved plant. This line of argument is not convincing. In considering the elimination of functioning plant, it is true, the effective present value of such plant from the standpoint of its possible remaining use (which may be more or less than unabsorbed cost) must be estimated and taken into account. But when the management has decided, wisely or unwisely, to make the change the amount subject to capitalization is clearly limited to the cost of the new plant. Cost at this point represents the market value of all the capacity to serve wrapped up in such plant. The superseded property, with its capacity, is gone, and the new property has no greater productive power or economy of operation because of the fact that it is taking the place of obsolescent facilities.

### QUESTIONS

1. What is meant by the "retirement policy" of recognizing depreciation? What are the two main variations? Which is preferable and why?
2. "The retirement policy represents the 'one-hoss-shay' theory of depreciation." Explain.
3. How do you account for the strong sentiment in favor of the retirement policy found in the public-utility field?
4. Discuss the doctrine that there is no accrued depreciation in the well-maintained and actively functioning plant as a whole.
5. Discuss the claim that the retirement policy brings about a reasonable distribution of operating charges between periods.

6. Outline the precise conditions under which the retirement policy will give the same operating charges as straight-line depreciation when the property has become "seasoned."

7. Why is the estimate of "actual" depreciation as made by the appraiser usually smaller than the amount accrued by the accountant?

8. The telephone companies accept the doctrine that estimated depreciation should be regularly accrued as an operating charge but object to the deduction of the resulting reserves from the cost of property in finding fair value for rate purposes. Is this position justified?

9. "Charges to customers from month to month and year to year cannot be adjusted because of so-called accruing depreciation. How ridiculous it would be, for example, to attempt to fix different freight rates for each installation of cars in service! It is obvious, therefore, that depreciation reserves are not deductible in determining the rate base." Can this point be met by the supporter of systematic depreciation accounting?

10. With illustrative figures and careful statement of assumptions show that accrual depreciation may be deducted in finding an equitable rate base when: (1) a replacement fund is accumulated; (2) amount of funds covering expired plant cost is returned to investors; (3) funds received to cover expired plant cost are invested in additional plant.

11. "Depreciation reserves amounting to fifty per cent of the cost of the property, and which admittedly will never be completely utilized, are obviously excessive." Point out carefully the objections to this statement.

12. Under what conditions does straight-line depreciation accounting tend to produce a serious distortion of the periodic rate of return on investment? Under what conditions is this tendency minimized? Draw a general conclusion with respect to the applicability of the straight-line method to public-utility enterprises in connection with rate regulation.

13. What leads to the theory that retirement losses in a utility enterprise are chargeable to future revenues? Is the reasonableness of the theory borne out in practice?

14. Criticize the doctrine that the book loss arising when plant capable of giving service is superseded by improved facilities should be capitalized as part of the cost of the new property.

## XIV

### VALUATION OF PLANT

**Occasions for Valuation.** The prospect of immediate purchase or sale is perhaps the most important occasion for the appraisal of plant assets. The balances appearing on the books are not likely to be acceptable evidence of market value to either buyer or seller, even where it is expected that the property will be continued in use with no material change in operating conditions. Accrued depreciation measures expired cost from the standpoint of long-run accounting policy, and the recorded amount at the time of the transfer may not be in accord with the estimates and opinions of interested parties based on the circumstances then prevailing. There is also the possibility that cost itself will not be correctly stated because of lack of refinement in the accounting for maintenance, and in the treatment of additions and retirements. More important is the fact that where property has been in use for some time the book costs—however carefully compiled—are usually out of line with the current costs of similar assets. Under these conditions a process of examination and valuation is necessary to the determination of reasonable bids or offering prices. Comprehensive appraisals in connection with the transfer of plant arise particularly in mergers, reorganizations, and other situations involving a substantial change in the ownership of the enterprise.

Valuation of property is stressed in the process of finding fair value for rate purposes in the utility field, and much of the controversy with respect to bases and methods has arisen in this connection. Valuations are also required: in levying general property taxes and estate duties, and at various points in the administration of income taxes; in the measurement of cost under "fair-trade" acts; in determining amounts of insurance to be carried and in proving losses; and in estimating proceeds of particular retirements or of general liquidations and settlements.

**Importance of Valuation Data to Management and Investors.** Particularly on account of changes in the prices of plant elements as reflected in current costs, accounts based on original costs and estimated depreciation do not always furnish adequate information to the operating man-

agement. Sound decisions with respect to maintenance policy and time of replacement, for example, cannot be reached without a close scrutiny of market conditions and a recognition of the significance of existing facilities in the light of such conditions. Depreciation based on book value, moreover, may be subject to serious limitation as a measure of the effective operating charge for the particular process or department or for the business as a whole. In other words, a process of valuation and revaluation which is more or less continuous is necessary to a thoroughgoing control and wise use of plant assets, and under some circumstances a formal appraisal may be desirable in this connection.

Attention may also be directed here to the limitations of recorded plant values as a basis for investment or managerial analysis, especially with reference to the computation of rate of return or earning power. If, for example, plant assets are acquired during a period of low prices an earning rate based on recorded values in a later year when prices are on a much higher level is presumably less significant to actual or prospective investors or to management than a rate calculated in terms of property values revised in the light of prevailing conditions. It is possible, in fact, for a rate that takes no account of changing plant values to create an appearance of superior earning power and intangible value which is entirely unwarranted, or—in other circumstances—to indicate unsuccessful operation when conditions are not unfavorable. It follows that knowledge of the movement of plant values is highly desirable in a study of trends in the individual enterprise and in comparing the data of two or more concerns.

**Bases of Plant Valuation.** The principal approaches to valuation of plant in use are: (1) actual dollar cost less estimated depreciation; and (2) estimated replacement or reproduction cost less estimated depreciation. The first of these is the traditional basis of plant accounting, and where fully satisfactory records are maintained no special appraisal is required to supply the data. However, as indicated above the accounts do not always reflect the costs of all plant elements in service at a particular point, and circumstances may so develop, even under the most favorable conditions of account-keeping, that one or more interested parties will insist on a complete verification of original cost and a retroactive estimate of depreciation. Replacement cost less depreciation, on the other hand, is the conception of the value of the fixed property of the going concern which is emphasized by the appraiser in the industrial as well as in the utility field, and has received substantial support from commissions and courts in rate cases. It is the cost of construction or purchase as evidenced by current prices rather than recorded cost, according to the position usually taken by the appraiser, which is truly

significant to the management of the enterprise and all other parties concerned.

The conception of "fair market value" which is prominent in income-tax regulations, insurance adjustments, real-estate appraisals, and other connections does not represent an independent approach to the problem of property values. Defined as the price which would result from arm's-length negotiation between a willing buyer and willing seller, each fully acquainted with the conditions and each in the same bargaining position, fair market value is the final result of the valuation process and presumably reflects a careful weighing of all the available evidence. In a particular case a fair market value agreed upon may approximate the cost of replacement less depreciation. The valuation approved as a rate base by the regulating authority in the utility field often represents a compromise between the estimates presented by the opposing parties.

In estimating the value of property about to be retired or liquidated the basis generally accepted is the recognized market value of the salvage involved less expected retirement or liquidation charges, or the fair market value in view of the use to which the property may be put in other hands.

It has sometimes been suggested that plant values should be estimated by discounting the prospective earning power of such assets. Is there any merit in this proposal? Granting that the general conception of value as the present worth of future income is significant, it seems clear that capitalizing earnings is not as a rule a practicable basis of appraising specific units of plant property. In the first place the task of estimating earnings for any considerable period is loaded with difficulties and yields results which are none too dependable under the most favorable conditions. Second, in most cases business income must be viewed as a composite result of operation, not assignable to particular structures or units of equipment. In the third place the earnings of plant property are in themselves affected by changes in costs, and in the particular situation the immediate value is more likely to reflect market cost than prospective income. On the other hand, for obsolescent property which will probably be continued in use for only a few years at the most and which presumably will not be replaced in kind, there is much to be said for the earning-power approach as opposed to a cost valuation. This point is emphasized later in the discussion of appraisal procedure.

**Significance of Replacement Cost.** The case for the use of replacement cost rather than original cost as a basis for measuring depreciation charges and as a starting point in finding present plant values rests primarily on the commonplace theory that the influential costs in the economic process are those that are reflected in the immediate level of



prices. Applying this doctrine to the affairs of the business enterprise leads to the view that the depreciation factor in cost of production is gauged by the current cost of acquiring similar facilities rather than by recorded plant investment. It may be contended, in other words, that the periodic contribution of plant in use should be reckoned, like labor and material charges, in terms of the prevailing market prices of the component elements. Failure of the management to recognize the limitations of recorded plant cost during a period of rising or falling prices, so the argument runs, is likely to lead to unwise utilization of available resources, improper pricing of product, and unsound decisions with respect to repair policy and retirements.

Undoubtedly there is much force in this position. In general the prices which motivate conduct throughout the business field are those currently in effect rather than those of an earlier period. On the other hand one should not jump from this point to the conclusion that a continuous process of plant appraisal and a continuous revision of plant accounts is called for. In the first place it would be inexpedient to attempt to adjust the book value of fixed property and the periodic depreciation charge in conformity with minor and short-term fluctuations; only in the face of major and persistent change is it at all reasonable to contemplate a systematic program of revaluation and corresponding modification of accounts. It must not be forgotten, in the second place, that the price system is not uniformly sensitive throughout, and that for considerable periods selling prices may not move in harmony with changing costs of production. Selling prices, moreover, are not in general fixed by cost to the particular concern—whatever the basis on which such cost may be computed. In the third place it may be granted that current replacement costs are significant to business management, and should be considered in making major decisions in which the question of plant costs is involved, without admitting the desirability of a complete revamping of plant accounts and related depreciation charges. Particularly in view of income-tax regulations and other aspects of the legal framework within which a business enterprise must operate, the original cost of plant and the depreciation charges based on such cost are data which the accountant must continue to make available. From an accounting standpoint, that is, replacement costs are not a substitute for recorded costs, although they may represent significant supplementary facts.

That replacement cost less estimated depreciation more nearly reflects the present fair value of standard plant assets in use than does recorded cost less accrued depreciation seems to be a reasonable assumption. If the cost of acquiring certain facilities new, for example, is \$100,000, the

indicated market value for an existing plant of precisely the character desired is that sum less appropriate deduction for depreciation. Cost of replacement less depreciation, on the other hand, is no more reliable than depreciated cost as a measure of the fair market value of a plant which because of obsolescence, unsatisfactory location, poor arrangement, or other unfavorable conditions would not be reproduced in kind. In general the present worth of such facilities is represented by the discounted value, in the particular setting, of the services which the property may be expected to render in the estimated remaining life.

In the utility field the significance of replacement cost to operating management is affected by the fact that prices on the selling side can be adjusted to changing costs only with the formal approval of the regulating authority. The relation of replacement cost to the fair value of utility property, and to the derivative depreciation charges, is also obscured by the tendency of regulation to protect as well as to restrict, by the extent to which capital is raised through the issue of bonds and other "dollar contracts," and by other special conditions associated with regulation. Nevertheless the commissions and courts have been bombarded with estimates of replacement cost in rate cases, particularly during periods of advancing prices, and have in general displayed a willingness to take account of the movement of plant cost in establishing "fair" values.

**Maintenance of Physical Capital.** The periodic depreciation charge, as was pointed out in an earlier chapter, plays a part in preventing overstatement of net earnings and the distribution of capital funds in the guise of earned dividends which might result from such overstatement. That is, the recognition of depreciation—together with all other charges—tends to preserve the integrity of the capital invested in the enterprise. For example, if the M Co. begins business with plant assets which cost \$100,000 and will last ten years, with no salvage value, the accruing of depreciation will result in charging the revenues arising during the life of the property with the amount of \$100,000, and this will mean—if there are no net losses and no distributions to stockholders in excess of reported net profits—that funds will be retained in the business to match the expiring cost of plant. Such resources may be utilized to acquire additional facilities, to expand working capital, to retire obligations, or to build up a replacement fund.

In recent years the basing of depreciation charges on recorded cost has been widely criticized on the ground that such depreciation accounting will maintain capital only in the sense of number of dollars invested. It is pointed out that in a period of rising prices the retention of funds in the amount of original cost will not provide for the replacement of

physical plant and that in a period of falling prices the funds made available by this policy will exceed the amount required to ensure renewal of the original facilities. And the conclusion usually reached is that the proper basis for plant valuation and depreciation for the purpose of maintaining capital is cost of replacement rather than recorded dollar cost.

This position overemphasizes the relation of depreciation accounting to the financing of replacements. The essential purpose of accruing depreciation, as has been explained, is the proper reckoning of cost of operation and profits. This is necessary in a terminable enterprise, where no replacements are contemplated, as well as in a continuous undertaking; it is likewise necessary where it is not expected that replacements will be made strictly in kind. It must also be remembered that funds are provided by revenues, not by the act of accruing cost. Thus the particular level of depreciation charges recognized in the accounts has no bearing on the amount of funds received except in those relatively rare situations in which selling prices are definitely affected by specific calculations of cost.

The importance of maintaining physical capacity from an operating standpoint is evident, and any policy of valuation or method of recognizing depreciation which promises to be genuinely helpful in this connection deserves careful examination. It is going too far, however, to assume that a shift from an accounting based on cost to a process of valuation and accounting that emphasizes replacement cost will produce the desired results. (See following section.) From the legal point of view, moreover, pressure is in the direction of maintenance of dollar capital rather than physical capital, and the cost basis of reckoning is required in this connection.

**Recognizing Replacement Cost and Accumulation of Replacement Funds.** As a means of ensuring the accumulation of funds sufficient to replace plant assets in kind at date of retirement the use of the replacement-cost basis has definite limitations, aside from the general considerations indicated above. This may be made clear by examination of a hypothetical case.

Assume that the total replacement cost of the plant facilities of the M Co. referred to in the preceding section increases regularly by 10% of the original cost each year, as measured by the market prices of component elements, and stands at \$200,000 at the end of the expected service life. In this situation a policy of charging operations each year with 10% of replacement cost as of the beginning of each year would result as follows:

<i>Year</i>	<i>Replacement Cost *</i>	<i>Depreciation Charge</i>	<i>Total Accrued</i>
1	\$100,000	\$10,000	\$ 10,000
2	110,000	11,000	21,000
3	120,000	12,000	33,000
4	130,000	13,000	46,000
5	140,000	14,000	60,000
6	150,000	15,000	75,000
7	160,000	16,000	91,000
8	170,000	17,000	108,000
9	180,000	18,000	126,000
10	190,000	19,000	145,000

\* At beginning of year.

Under this procedure, evidently, an accumulation of funds equivalent to the total of the depreciation charges would fall short of the amount of replacement cost at the date of retirement by \$55,000. To finance the replacement of plant out of revenues, in other words, it would be necessary to retain funds representing net profits of \$55,000 in addition to funds matching the depreciation cost recognized.

To provide depreciation charges equivalent to replacement cost at date of retirement (in view of the fact that cost at that date cannot be ascertained in advance) it would be necessary to treat each increment as subject to depreciation during the remaining life of the property. That is, by writing off the first increment in nine years, the second in eight years, and so on, and absorbing the last increment at the end of the tenth year, it would be possible to charge the entire replacement cost to operations during the service life. This is shown by the following table:

<i>Year</i>	<i>Replacement Cost *</i>	<i>Depreciation Charge</i>	<i>Total Accrued</i>
1	\$100,000.00	\$10,000.00	\$10,000.00
2	110,000.00	11,111.11	21,111.11
3	120,000.00	12,361.11	33,472.22
4	130,000.00	13,789.68	47,261.90
5	140,000.00	15,456.35	62,718.25
6	150,000.00	17,456.35	80,174.60
7	160,000.00	19,956.35	100,130.95
8	170,000.00	23,289.68	123,420.63
9	180,000.00	28,289.68	151,710.31
10	190,000.00	48,289.69 †	200,000.00

\* At beginning of year.

† Including increase in cost recognized at end of tenth year.

Granting that each year of the entire service life should bear no more than its proportionate part of the total cost of replacement, it is clear that this treatment results in a most inequitable distribution of charges. Of the total increase in cost of \$100,000.00 over 38% is written off in the last year and nearly 70% in the last three years, and there is no

reason for supposing that the revenues in these years will be at a level permitting the recovery of such charges.

Assuming an original plant cost of \$100,000 and an annual decline in replacement cost of \$5,000 throughout the ten years of service life, the effect of using replacement cost at the beginning of each period as a basis for depreciation is as shown by the following:

<i>Year</i>	<i>Replacement Cost *</i>	<i>Depreciation Charge</i>	<i>Total Accrued</i>
1	\$100,000	\$10,000	\$10,000
2	95,000	9,500	19,500
3	90,000	9,000	28,500
4	85,000	8,500	37,000
5	80,000	8,000	45,000
6	75,000	7,500	52,500
7	70,000	7,000	59,500
8	65,000	6,500	66,000
9	60,000	6,000	72,000
10	55,000	5,500	77,500

\* At beginning of period.

In this case an accumulation of funds amounting to the total of the accrued depreciation would result in an excess of \$27,500 over the amount required to replace. To restrict the total of depreciation charges to the cost of replacement at retirement date, \$50,000, it would be necessary to deduct the total accrued at the end of each year from the replacement cost of the same date, and divide the result by the years of remaining life to obtain the charge for the following year—an arbitrary procedure which would result in a highly unreasonable periodic distribution.

It seems fair to conclude that the policy of basing depreciation on replacement cost is not very helpful either as a means or as a guide to the accumulation of funds necessary to maintain the extent and capacity of plant. The examples given indicate the technical difficulty, even under ideal conditions, of charging operations with the replacement cost as of the retirement date. In practice, moreover, increase or decrease in replacement cost does not occur in the systematic manner suggested by the examples. The movement may be very irregular, and may not be confined to one direction during the life of the particular plant property. Cost at the retirement date may happen to be in the vicinity of original cost notwithstanding major interim fluctuations. Where cost of replacement advances sharply in the early years, is maintained at a high level in the middle years, and then falls abruptly before date of retirement, the total of depreciation charges based on year-to-year replacement cost may exceed the cost at the final date by a substantial amount. What the actual cost of replacement will be is of course not known until the date of renewal arrives, and in general the prices of one particular period are no more promising than those of any other as a basis for

estimating such cost (at least until the later years of service life are reached). In the face of these conditions, clearly, no available procedure will ensure charges to operation equitably distributed through service life and approximating the cost of acquiring similar facilities when the original property is eliminated.

**Maintenance of Purchasing Power.** That recorded cost of plant fails to represent replacement cost is not the most serious weakness of the cost basis. As a result of the general movement of prices, reflecting a change in the value of the monetary unit itself, the original dollar cost is not a dependable expression of actual cost in the sense of economic sacrifice or committed purchasing power. Assume, for example, that when the index of the general price level is 100 a concern acquires plant at a cost of \$100,000, and with an expected life of ten years. What is the actual cost of this same property five years later when the index stands at 200? The answer depends on the measuring unit employed. In dollars of the date of purchase the cost remains at \$100,000; stated in terms of dollars of the later period the cost is correctly reported as \$200,000.

The variable value of the dollar is undoubtedly one of the serious difficulties faced by the accountant in his effort to present significant and useful data, and the matter is especially troublesome in the case of long-lived business elements such as plant. During periods of major price movements plant accounts which exhibit the various generations of additions and retirements in heterogeneous dollars are not fully satisfactory as a record of funds invested. Similarly the conventional depreciation charge based upon such accounts, a composite of dissimilar dollars, is subject to misinterpretation. As yet accountants have made little effort to grapple with this question seriously. This is perhaps not so much their fault as that of the legal framework within which business transactions are conducted. In the eyes of the law a dollar is a dollar, regardless of the amount of purchasing power involved, and those charged with the responsibility of reporting taxable income and amounts legally available to the various equities have inevitably adopted this point of view. Nevertheless the fact remains that the accountant has an increasingly important duty to operating management and to investors; that the conventional reports, which entirely ignore the changes in the value of the measuring unit employed, leave something to be desired.

It has been suggested by a number of writers that invested capital in the most significant sense is defined in terms of the economic power—command over goods and services in general—which is committed to the undertaking. From this standpoint the capital embodied in plant is measured neither by recorded dollar cost nor by physical extent or

capacity; it is rather measured by the sum of the amounts invested expressed in the common denominator of the dollar of the current year (or some other selected base period). Acceptance of this position leads to the doctrine that for the purpose of guiding the management in the task of maintaining true capital the plant account should be periodically converted into common dollars and depreciation should be charged on this adjusted basis.

This policy may be illustrated by using the example mentioned above and assuming that the price index rises twenty points annually for five years and falls fifteen points per year during the remaining life of the property. For convenience it will also be assumed that the change in the value of money occurs at the end of each year. Charging operations each year with a proportionate part—in view of the entire service life—of the converted cost as of the beginning of the year results as follows:

<i>Year</i>	<i>Converted Cost *</i>	<i>Depreciation Charge</i>	<i>Total Accrued</i>
1	\$100,000	\$10,000	\$ 10,000
2	120,000	12,000	22,000
3	140,000	14,000	36,000
4	160,000	16,000	52,000
5	180,000	18,000	70,000
6	200,000	20,000	90,000
7	185,000	18,500	108,500
8	170,000	17,000	125,500
9	155,000	15,500	141,000
10	140,000	14,000	155,000

\* At beginning of period; the first figure is the original dollar cost.

Under these artificial conditions the total of the depreciation charges through service life does not coincide with the converted cost as of the retirement date. In most actual cases, moreover, the charges determined by this method would be either less than or in excess of the final converted cost.

The use of converted dollar cost as a basis for depreciation charges is subject to the technical limitations that beset the use of replacement cost; in general neither program can be relied upon to provide charges to operation equivalent to the amount necessary as of the date of retirement to preserve the integrity of capital—defined as invested purchasing power in one case and as physical extent or capacity in the other.

**Converted Dollar Cost and Specific Replacement Cost.** The relation between converted cost and specific replacement cost should be made clear. It is possible to conceive of an increase or decrease in the cost of a particular plant asset unaccompanied by any appreciable change in the value of the dollar. In general, however, the change in plant cost and the movement in the level of prices as a whole follow similar although not identical courses. If, for example, the replacement cost of the plant

of a concern with a large, diversified property advances twenty-five per cent it is likely that the concurrent advance in the general price level will amount to at least fifteen to twenty per cent. It is this fact which affords partial justification for the observation that those who support replacement cost as a basis for plant valuation and depreciation are in effect advocating adherence to actual economic cost in the sense of the purchasing power invested.

It is true, nevertheless, that as a means of measuring the current values of particular plants as reflected in the market prices of component elements, converted dollar cost is a less satisfactory basis than estimated cost of replacement.

A more extended discussion of the problem raised by the changing value of money is found in Chapter XXXIII.

**Appreciation and Declination.** By appreciation of plant is meant the net enhancement in value as found by the appraiser, excluding the effect of restoration of cost or adjustment of overstated depreciation. "Declination" in turn may be defined as the amount by which recorded cost less depreciation, after providing for any necessary corrections, exceeds the estimated valuation. (This term is not used in practice; it is employed here as a convenient label for the phenomenon which is the opposite of appreciation.) The terms "gross appreciation" and "gross declination" are useful in indicating the difference between undepreciated replacement cost—or other primary basis—as determined by appraisal and the original cost of construction or purchase.

Estimated changes in plant value are often referred to as "unrealized" gains or losses, and much of the opposition among accountants to the recognition of the results of appraisals in the accounts is based upon the tradition that all unrealized elements should be excluded from reported income. Appreciation (or declination) is deemed to be realized, according to the usual interpretation, as the property in question is charged to operations and recovered through revenues. In this connection the mistake is sometimes made of assuming that realization is assured by the process of charging to revenue. Realization also occurs where the change in value is validated by sale.

That plant write-up should not be reflected in current profit and loss seems to be a thoroughly sound conclusion. Estimated enhancement of capital assets is clearly not a part of the revenue stream resulting from business operation and is not represented by disposable funds. Similarly an estimated decline in the carrying value of functioning property—in addition to a full charge for depreciation—is not an ordinary operating loss, and there may be some question as to the propriety of reporting such decline at any point in the income statement. The most reasonable



conception, in general, is that which views the amount of the increase or decrease as a special adjustment of capital and surplus combined.

Assume, for example, that the records of the M Co. show the following status:

Current Assets . . . . .	\$ 300,000	Capital Stock . . . . .	\$ 850,000
Plant (net book value) . . . . .	700,000	Surplus . . . . .	150,000
	<u>\$1,000,000</u>		<u>\$1,000,000</u>

At this point the plant is appraised and the result is an estimated net value of \$900,000. Under these conditions the appreciation of \$200,000 may be conceived as representing an enhancement of plant on the one hand and an unassigned adjunct of the total stock equity on the other. By adopting this conception the unrealized increase in value is entirely excluded from the income report and is presented as a supplementary proprietary item in the balance sheet in the following form:

Capital Stock . . . . .	\$850,000	
Surplus . . . . .	150,000	\$1,000,000
	<u>          </u>	
Estimated Plant Appreciation . . . . .		200,000
		<u>\$1,200,000</u>

There are differences of opinion with respect to the final disposition of the credit resulting from a plant write-up. The opinion most widely held is that such credit should be systematically transferred to income or surplus as the increased plant account is absorbed in operating charges. According to the principal alternative view the appraisal credit should be treated as a permanent element of the capital section of the stock equity. These questions receive further attention in the next chapter.

**Analysis of Appreciation.** The treatment of appreciation as an unassigned credit to the proprietary equity is convenient and "safe" for purposes of financial reporting, but it may be objected to as begging the question of the essential relation of the change in plant value to the capital and surplus elements of the stockholders' equity. Assuming that it is desired to analyze the amount of appreciation in terms of underlying effects or implications with respect to the two main divisions of the stock equity, how is this to be accomplished? According to the accepted legal interpretation, under which capital is confined to a specified and unchanging number of dollars, any increase or decrease in asset value attaches, first, to the surplus category. In the case given in the preceding section, for example, the stated capital of \$850,000 is not modified in the eyes of the law by the fact of appreciation. If capital is defined from the standpoint of economic commitment or purchasing power, on the

other hand, the significance of a change in plant valuation can be determined only by considering the relation of the movement in the general price level to the extent of the write-up or write-down. Assume, for example, that the entire existing plant of the M Co. was acquired when the index of prices in general stood at 100 and that on the date of the appraisal the price level had advanced 25%. Assume, further, that no part of the surplus account is represented in the investment in plant. Under these circumstances the unexpired commitment in plant, measured in terms of dollars of the date of the appraisal, is \$875,000 (125% of the recorded dollars), which means that of the nominal appreciation of \$200,000 the amount of \$175,000 is absorbed in the restatement of the capital invested in plant, while the balance of \$25,000 represents a form of unrealized gain. In other words, of the credit of \$200,000 arising upon the recognition of the increase in value found by the appraisal 87½% attaches to the capital section of the stock equity and the balance to the surplus section.

A somewhat different assignment results if the investment in plant is deemed to represent surplus funds as well as capital. Assume, for example, that the unexpired dollar cost of plant of \$700,000 reflects proportionate commitments of capital and surplus, and that the 15% covered by surplus was acquired when the price index stood at 115—other conditions remaining as indicated above. In this situation the effect of appreciation upon the proprietary equity may be considered to be made up of three parts: (1) the amount necessary to convert to current dollars the capital element of 85% (\$595,000) involved in plant, \$148,750 (125/100 of \$595,000, \$743,750, less \$595,000); (2) the amount necessary to convert to current dollars the surplus element of 15% (\$105,000.00) represented in plant, \$9,130.43 (125/115 of \$105,000.00, \$114,130.43, less \$105,000); (3) the balance of \$42,119.57. The computations may be indicated in tabular form as follows:

	<i>Capital 85%</i>	<i>Surplus 15%</i>	<i>Total</i>
Converted plant cost . . . . .	\$43,750.00	\$114,130.43	\$857,880.43
Unexpired recorded cost . . . . .	595,000.00	105,000.00	700,000.00
	<u>\$148,750.00</u>	<u>\$ 9,130.43</u>	
Capital and surplus adjustment . . . . .			\$157,880.43
Unrealized gain . . . . .			42,119.57
Estimated appreciation . . . . .			<u>\$200,000.00</u>

Similarly the analysis of plant write-down depends upon the definition of capital adopted and the interpretation of the origin of plant with respect to capital and surplus funds.

**Special Occasions for Write-Down.** Particularly during the depression of the thirties the practice of writing down plant on a large scale became a popular procedure with corporate managements. To some extent the development reflected the desire to be rid of past write-ups, no longer validated by the level of prices and the conditions of business activity; to a greater degree it represented the anxiety of management to reduce operating charges and improve the showing of income (or restrict the showing of loss) by immediate absorption of at least a part of the periodic depreciation charges which would otherwise be recognized. In most cases the amounts written off were determined in a very arbitrary fashion, and the method of write-off was often objectionable. The usual procedure was to reduce the stated capital by the desired amount, thus creating a "surplus" against which the questionable asset values might be charged. One large company, for example, transferred approximately \$60,000,000 from the capital account to surplus, charged around \$50,000,000 of plant account to surplus, and then reported an increase in surplus of around \$10,000,000. In this instance, moreover, the decrease in depreciation charges in the year following the adjustment was roughly the same amount as the total net income reported; without this adjustment, in other words, the company about "broke even" for the year. Aside from the arbitrary character of these sweeping revisions of plant account it was noticeable that the nature and effect of the change were seldom fully and clearly reflected in succeeding reports to stockholders.

This does not mean that major write-downs are never justified. When, for example, it has become apparent that the lives of one or more units of plant have been seriously affected by unexpected obsolescence and related factors, not covered by depreciation accrued to date, the recognition of the estimated loss need not and should not await actual retirement, and neither should an effort be made to absorb it in charges to revenues in subsequent periods. Further, when the use of one or more units has been discontinued, and restoration to service—in the deliberate opinion of those most familiar with the situation—is unlikely, a write-down to salvage value is entirely justified. This conclusion is not altered by purely incidental current use or by the bare possibility of later return to an important use. The possibility that a bad account may be in whole or in part recovered does not warrant failure to recognize the apparent loss, and a similar position is justified with respect to plant. In this connection the income-tax authorities and the property-tax assessors sometimes take extremely unreasonable attitudes. The fact that property remains in physical existence, and may have a slight speculative value, does not warrant denying the owner a deductible loss and should

not make it necessary for him to pay a property tax based on a valuation that takes no account of the collapse in economic significance.

On the other hand purely temporary idleness does not justify a major write-down, and variations in intensity of use, within wide limits, hardly afford a basis for revaluation. Seasonal fluctuations obviously have no bearing, and even long-term swings in degree of utilization, taken alone, are a very questionable means of gauging plant values for accounting purposes. A decline in the use of steel plants to twenty per cent of rated capacity followed in a few months by an increase in use to eighty-five per cent, for example, does not warrant successive elimination and restoration of a large part of the recorded values. The fact that the maximum degree of utilization is seldom if ever attained must be borne in mind in this connection as well as the need for a reasonable "reserve" of standby plant for auxiliary or emergency service.

**Estimating Replacement Cost and Depreciation.** The first step in appraising plant under present-day technique consists of the complete inspection or inventory. The results of the "field work" are then compiled in the form of detailed lists or schedules covering the entire property as of the set date of the valuation. The next main step is pricing, and this usually means estimating costs of replacement or reproduction. In dealing with standard units of equipment the appraiser commonly relies upon quotations furnished by manufacturers or other regular sources of supply, supplemented by estimates of transportation and installation charges. In appraising buildings and other structures, and highly specialized equipment either built by the enterprise itself or made to order, the procedure considered most acceptable requires the breaking down of each unit into the basic quantities of labor, material, and overhead services involved and the accumulation of a replacement cost in terms of the current prices of such elements. An alternative and less time-consuming and expensive method consists of finding the extent or capacity of each asset in terms of area, cubage, horsepower, or other recognized general unit for the measurement of construction cost, and applying in each case the appropriate current unit cost as furnished by experienced builders. The final stage is the measurement of accrued depreciation, and the tabulation of net depreciated or "sound" values in appropriately classified form. The depreciation estimates usually lean heavily on the condition percentages found by the inventory staff.

Competent appraisers have little difficulty (aside from the amount of work involved) in approximating the amounts of the various classes of materials required in constructing a particular unit of plant. Likewise the current costs of such materials laid down at the particular location can be determined with a reasonable degree of accuracy. Estimating

the number of units of each type of labor involved is more troublesome, particularly in view of the many variations in construction methods. This is illustrated by the old story of the several experts who in appraising a particular property made estimates of the number of men required in setting poles ranging all the way from a crew of three to a gang of ten men. When it comes to the so-called overhead costs—such as depreciation of construction equipment, engineering, supervision, insurance, injuries and damages, taxes, and interest during construction—the estimates made are sometimes extremely hypothetical and undependable.

Appraisers have often been guilty of preparing elaborate estimates of replacement cost for buildings and equipment which on account of obsolescence or other special conditions would never be replaced in kind. An extreme example is found where the engineers, in setting a value on certain entirely obsolete engines which had cost originally around \$150,000, went to the manufacturers with complete blueprints and specifications to ascertain what it would cost to reproduce the identical equipment as a special order. The resulting estimate of cost new was well over a million dollars. The more conservative valuation experts recognize the impropriety of such procedure and do not employ the rigid replacement-cost approach in dealing with obsolete types of property or structures in which are represented materials that are no longer available or suitable. In this connection it has sometimes been suggested that the significant cost of replacement is the cost of securing the identical capacity or service by means of the most modern type of plant rather than the current cost of acquiring the existing facilities, but this position has not been generally favored by the professional appraiser.

The appraiser's estimate of accrued depreciation, as noted above, stresses physical condition and hence is usually less than the amount found by applying the straight-line or similar method of apportionment in terms of total service life. In attempting to justify this approach emphasis is laid upon the effect of both routine servicing and replacement of parts as means of offsetting or retarding depreciation, and attention is called to the difficulty of estimating the results of obsolescence, inadequacy, etc. which are not fully apparent at the date of the valuation. It is particularly in this connection that the accountant who is called upon to formulate a plan by which appraisal data may be introduced into the accounts finds difficulty in reconciling his own approach and methods with those of the professional appraiser.

**Appraisal Reports and Records.** The typical report based on the comprehensive appraisal consists of a number of volumes representing the detailed inventory and a final volume of summaries. With respect to buildings or other structures the detailed report includes a complete

analysis of cost of replacement in terms of component elements of materials grouped under such major heads as excavation, foundation, framing, roofing, flooring, plumbing, and painting. Depreciation, however, is calculated for each structure as a whole or for primary elements subject to independent renewal. Equipment is usually listed by location, serial number, and manufacturer, and for each unit are shown the current purchase price (where quotations are available), the estimated carriage and installation cost, and the estimated depreciation. In the recapitulation sheets the data of the detailed report are commonly compiled in terms of buildings or locations, broad classes of construction costs, classes of equipment, and plant accounts. Summaries by accounts are especially important in valuations in the public-utility field, where prescribed classifications are in effect. Property not in use or in other special status is segregated in the report of the careful appraiser.

The report shows "sound" values—usually cost of replacement less estimated depreciation—for each structure and each unit of equipment or for each structural element assumed to be separately depreciable. Special estimates of insurable values are sometimes included.

It is sometimes assumed that the appraiser need not investigate the question of property titles. It seems clear, however, that if serious blunders are to be avoided those in charge of the valuation must lay out the work of the inventory in such manner that all property attaching to the enterprise and within the scope of the appraisal as planned will be covered and all other property will be excluded.

If the results of an appraisal are made the basis of the underlying plant records of the enterprise special forms of ledger sheets or cards must be employed. It is possible to maintain two complete sets of records, one based on original cost and the other on appraised values, but in general it is preferable to provide records on which the cost data as well as the data found by appraisal may be assembled.

Aside from the question of the usefulness of estimated values a satisfactory appraisal report is of real assistance in the administration of plant property and in verifying recorded costs. The data resulting from the careful inspection characteristic of systematic valuation are particularly helpful in connection with the process of adjusting service lives and depreciation rates in conformity with changing conditions. As a rule, however, the appraiser avoids presenting specific estimates of remaining life, and the appraisal data may therefore not be very helpful for the purpose of depreciation accounting.

**Accountant's Attitude toward Appraisals.** To the accountant an appraisal is in general a disturbing event. The records which he has built up are based upon cost and he is naturally reluctant to see estimates of

value introduced into a system in which he has made no provision for handling such data. The accountant's somewhat unfriendly attitude toward revaluation is the more understandable when it is recalled that the making of an appraisal does not relieve him of the responsibility of preparing tax returns and reports in various connections which are based upon the facts of original cost. The flagrant overvaluation which has characterized many appraisals, moreover, has played a part in determining the general position taken by the accountant, long steeped in the tradition of conservatism.

At the same time the accountant has come to realize that plant valuation is a matter of persistent importance in business reorganization and merger, rate regulation, administration of property, cost reckonings, and other connections, and that it is not feasible to ignore the relation of appraisal data to the accounts and financial statements. The accountant has found, in other words, that he can function most effectively by assisting in the interpretation of the results of valuation and by developing methods of recording and reporting the essential facts brought to light—where this seems to be desirable—in such a manner as will not obscure original costs and applicable depreciation and will not lead to misinterpretation by managers, investors, or other interested parties.

The appraiser in turn has discovered that the competent accountant can be definitely helpful in planning and supervising the work of valuation, including methods of taking inventory and of compiling and classifying results.

In dealing with appraisals for which he is in no way responsible the accountant should subject the findings to such critical scrutiny and checking as conditions permit before undertaking to incorporate any of the results in the accounting records and reports. Among points deserving investigation are the scope of the valuation, the inventory procedure, the treatment of obsolete and idle plant, and the basis of depreciation calculations.

### QUESTIONS

1. List the principal occasions which may justify a special valuation of plant assets.
2. "In the case of materials and current services the operating accounts are charged with current costs; in the case of plant, charges to operation are often quite out of line with current plant costs—costs which are actually being incurred by new concerns in the field and by old concerns in so far as they are acquiring new units of property." Discuss.
3. "In making comparisons of enterprises and of different periods in the life of the particular business earning rates based on recorded costs less accrued depreciation as booked are likely to be misleading." Do you agree? Explain.
4. Define "replacement cost" and "fair market value" as bases of plant valuation.

5. "It is replacement cost, not recorded dollar cost, that expresses actual cost in the only significant sense." Discuss.
6. "Replacement cost is no more reliable than original cost as a measure of market value in the case of obsolescent plant." Do you agree? Explain.
7. What should be the general attitude of the regulatory agencies in the public-utility field toward replacement cost?
8. With an illustration show the practical impossibility of charging operations equitably with the amount of replacement cost as of the date of retirement.
9. Assuming that replacement cost could be estimated in advance would charging this amount to operations ensure the accumulation of a corresponding amount of liquid funds in the business? Discuss fully.
10. "True capital investment is measured by the amount of the general purchasing power of the funds committed to the undertaking." Explain.
11. "The purpose of depreciation accounting should be to ensure the charging of revenues with an amount equivalent to the economic capital consumed." Discuss.
12. Define "appreciation." "Declination." Contrast realized and unrealized appreciation and declination.
13. "The most reasonable interpretation is that which views the amount of the increase or decrease in plant value as an adjustment of capital and surplus combined." Explain, using an illustration.
14. Indicate some of the occasions on which a radical downward revision of plant values is justified. Outline and criticize the usual method of recording a write-down.
15. Outline the typical procedure employed by the appraiser in estimating cost of replacement. Indicate the weak spots. In what situations does estimated replacement cost have little or no significance to the management or any other interested party?
16. Discuss the appraiser's methods of measuring depreciation.
17. Describe the comprehensive appraisal report. What is meant by "sound value"?
18. Discuss the relation of the accountant to the work of plant valuation.



## XV

### RECORDING EFFECTS OF APPRAISALS

**Correction of Cost and Depreciation.** Occasionally an "appraisal" is undertaken primarily for the purpose of estimating original costs and accrued depreciation where no records are available or the accounts have not been properly kept. In such work the approximate date of construction or installation of each item in the inventory is estimated on the basis of physical inspection, oral evidence, and such records as may exist, and the prices employed are those that are found to have been in effect—or are estimated as having been in effect—on the various dates established. In ordinary valuations, moreover, the appraiser often brings to light situations in which replacements of important parts or even of entire units have been neglected, depreciation has been overstated or understated, and other errors have been made, and under such circumstances corrections are clearly in order if the plant accounts are to fulfill their minimum function of displaying the cost of existing property and a reasonable estimate of depreciation.

Assume, for example, that an appraisal of the plant of the M Co as of January 1, 1941, discloses the following:

1. The cost of additions to buildings made June 30, 1938, and amounting to \$5,000, was charged to current operations; a reasonable estimated life for such additions is twenty years, with no net salvage value.

2. On December 31, 1938, the use of equipment which cost \$2,500, and to which accrued depreciation of \$2,000 was applicable, was discontinued; there was no recognition of retirement notwithstanding the fact that prospect of restoration to use was slight; depreciation on this equipment has been charged to operations between date of effective retirement and date of appraisal in the amount of \$500; estimated net salvage value is \$100.

3. On June 30, 1939, new equipment was installed which actually cost \$7,500, and the book loss on equipment superseded, in the amount of \$3,000, was capitalized and treated as a part of the cost of improved facilities; depreciation accrued on the recorded value of the new equipment to date of appraisal amounts to \$1,575.

4. On June 30, 1940, expenditures to replace equipment amounting

to \$5,000 were charged directly to reserve for depreciation; the cost of the property eliminated on this occasion was \$4,000, and the net salvage realized—amounting to \$100, cash—was credited to the reserve; the amount in the depreciation allowance applicable to the retired property on the date of retirement was \$3,500; the annual depreciation rate applicable to both old and new equipment is 10%; the new equipment is assumed to have no net salvage value.

5. In view of changed conditions it is found that a reasonable estimate of the remaining service life of equipment installed on January 1, 1937, at a cost of \$10,000, is six years, and that the net salvage value will probably amount to \$1,000; the original estimate of service life was five years, with no salvage value, and depreciation has been accrued on the books accordingly.

6. Equipment which cost \$5,100 on January 1, 1938, and on which 100% depreciation has been accrued to date of appraisal, is found to have an estimated life of one year (from January 1, 1941), with no net salvage value.

Under these conditions the following scheme of correcting entries is in order:

(1)		
Building—Cost . . . . .	\$5,000	
Surplus . . . . .		\$4,375
Buildings—Allowance for Depreciation . . . . .		625
To restore building cost charged to operation on June 30, 1938, and accrue depreciation thereon for two and one-half years at 5% per annum		

(2)		
Equipment—Allowance for Depreciation . . . . .	2,500	
Retired Equipment—Estimated Salvage Value . . . . .	100	
Equipment—Cost . . . . .		2,500
Surplus . . . . .		100
To record retirement of equipment taken out of service December 31, 1938, a special account being charged with the estimated salvage value		

(3)		
Surplus . . . . .	2,550	
Equipment—Allowance for Depreciation . . . . .	450	
Equipment—Cost . . . . .		3,000
To eliminate from plant account loss of \$3,000 improperly capitalized on June 30, 1939, and to charge depreciation allowance with amount accrued on such loss for one and one-half years at 10% per annum		

(4)		
Equipment—Cost . . . . .	1,000	
Surplus . . . . .	450	
Equipment—Allowance for Depreciation . . . . .		1,450
To adjust plant cost and accrued depreciation on account of improper treatment of replacement on June 30, 1940, including correction of accrual for balance of year		

(5)

Equipment—Allowance for Depreciation . . . . .	4,400	
Surplus		4,400
To revise depreciation allowance on account of change in estimated life of equipment acquired on January 1, 1937, from five to ten years and introduction of estimate of net salvage value of \$1,000		

(6)

Equipment—Allowance for Depreciation . . . . .	1,275	
Surplus		1,275
To revise depreciation accrued on equipment acquired on January 1, 1938, and which has a remaining life of one year		

#### Additional comments and explanations:

1. It is clear that under the circumstances earned surplus is understated (or deficit overstated) by the amount of plant cost improperly charged to operations less the accrued depreciation on such plant from date of acquisition to date of appraisal. In this as in the other adjustments a special account rather than general surplus might first be employed, and in any event the adjustment of surplus always should be clearly reported in the annual income and surplus statement.

2. At the time the use of the property was discontinued the cost should have been closed from the regular plant account, the allowance being charged with \$2,000 and the loss of \$400 (assuming that an estimate of net salvage of \$100 would have been appropriate then) being recognized. Since the original date depreciation has been accrued and improperly charged to operations—in view of the fact that the property was presumably permanently out of service—in the amount of \$500, which exceeds by \$100 the original book loss; hence the credit to surplus of \$100. It is desirable to close the estimated salvage value into a special account so that the amount is definitely removed from the balances subject to continued accrual of depreciation. If there is no prospect of restoring this equipment to use it should be sold or junked so that the estimated salvage may be realized in cash without further delay.

3. An accrual of \$1,575 on a gross book value of \$10,500 indicates an annual rate of 10% (assuming no net salvage value); therefore the depreciation accrued on the loss improperly capitalized for the period from date of installation to date of appraisal is \$450. See discussion of capitalization of retirement losses in preceding chapters.

4. The complete entries which should have been made on the date of replacement, and to accrue depreciation for the balance of 1940, are:

Equipment—Allowance for Depreciation . . . . .	\$3,500	
Cash . . . . .	100	
Retirement Loss . . . . .	400	
Equipment—Cost		\$4,000
To record retirement of old equipment		

Equipment—Cost . . . . .	5,000	
Cash (or equivalent) . . . . .		5,000
To record purchase and installation of new equipment		
Operating Accounts . . . . .	250	
Equipment—Allowance for Depreciation . . . . .		250
To accrue depreciation on new equipment for last six months of 1940		

The entries actually made were:

Equipment—Allowance for Depreciation . . . . .	5,000	
Cash (or equivalent) . . . . .		5,000
To record cost of new equipment		
Cash . . . . .	100	
Equipment—Allowance for Depreciation . . . . .		100
To record receipt of cash for salvage		
Operating Accounts . . . . .	200	
Equipment—Allowance for Depreciation . . . . .		200
To accrue depreciation on old balance of plant cost for last half of 1940		

The necessary correcting entries are then as given above. The fact that a part of the accrued depreciation for the last half of 1940 might still be in the form of inventory value is ignored in making the surplus adjustment.

5. The adjustment is made retroactively. That is, the balance of the allowance for depreciation is decreased to 40% of the estimated depreciable amount of \$9,000. Some accountants would prefer to let the allowance stand at \$8,000 and write off the remaining amount subject to depreciation, \$1,000, in the estimated remaining life. This is the procedure which would be required in preparing subsequent income-tax returns. Such an adjustment, however, is seriously objectionable from the standpoint of year-to-year cost and income accounting because of the inequitable distribution of charges.

6. See comment on (5) and discussion in Chapter XI of the treatment of fully depreciated property which is found to have a remaining service life.

**Recording Gross Appreciation.** The M Co., for example, has a building which was completed and placed in service as of January 1, 1933. The total cost was \$100,000. The estimated life is twenty years, and no net salvage value is anticipated. An appraisal is made as of December 31, 1940, for the purpose of finding replacement cost and the resulting estimate is \$120,000. The management decides to place the building account, accrued depreciation, and subsequent charges to operation on a replacement-cost basis. It is also decided to appropriate surplus in the form of a special reserve in the amount by which depreciation charges in the past have been less than the proportionate part of replacement

cost in view of the elapsed life, and to transfer appreciation as realized in succeeding years to such reserve. The following scheme covers the adjustments as of the date of the appraisal, and the entries necessary to recognize depreciation, "realized" appreciation, and appropriation of reserve for the year 1941.

(1)		
Building—Adjustment to Replacement Cost . . . . .	\$20,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost) . . . . .		\$ 8,000
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .		12,000
To adjust building cost and accrued depreciation to replacement-cost basis and recognize unrealized appreciation		

(2)		
Surplus . . . . .	8,000	
Reserve for Increased Plant Cost . . . . .		8,000
To appropriate surplus as a reserve to reflect increased cost of replacement in an amount corresponding to fraction of life elapsed		

(3)		
Operating Accounts . . . . .	6,000	
Building—Allowance for Depreciation (Cost) . . . . .		5,000
Building—Allowance for Depreciation (Adjustment to Replacement Cost) . . . . .		1,000
To accrue depreciation for 1941		

(4)		
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .	1,000	
Realized Appreciation . . . . .		1,000
To accrue appreciation absorbed through charges to operation		

(5)		
Realized Appreciation . . . . .	1,000	
Income . . . . .		1,000
To close special account into general income account		

(6)		
Surplus . . . . .	1,000	
Reserve for Increased Plant Cost . . . . .		1,000
To increase special reserve by amount of realized appreciation		

In this treatment the adjustment of plant cost and the depreciation accrued thereon are recorded in special accounts, to ensure preservation of the data of original cost. The method of recording unrealized appreciation is in accord with the interpretation emphasized in the preceding chapter. Surplus is appropriated to match the increase in plant cost in order to indicate the undesirability, from the standpoint of the maintenance of the integrity of capital as represented by physical plant, of

basing dividends on this section of surplus. The possibility of making such appropriations, of course, depends upon the existence of surplus, and the practical significance of the action is limited by the considerations to which attention was called in the discussion of capital maintenance through depreciation charges in the preceding chapter. The yearly item of "realized" appreciation should be interpreted as in effect an offset to the increase in the depreciation charge over the amount accrued on a cost basis which must be taken into account in determining net income from the standpoint of taxation and final net profit in the general legal sense. Effective realization, it should be remembered, depends upon the size of the revenue stream, not upon the booking of depreciation. For the sake of emphasizing this point the title "absorbed appreciation" might be substituted for that of "realized appreciation." In this example (and others to follow) it is assumed for convenience that all charges are covered by revenue funds. It is also assumed that the entire amount of depreciation charged to operations for the year is assignable to the revenues of the same period. The most important feature of the entire procedure as outlined is the charging of operating accounts with depreciation based on replacement cost rather than actual cost and the resulting modification of the showing of operating net. The final profit figure and the change in earned surplus are reported on the strict cost basis, unaffected by the appraisal.

In the income statement, to avoid misinterpretation, the item of realized appreciation should be distinctly reported and incorporated in the final net. An explanatory note is also desirable. In the balance sheet the presentation should clearly disclose the amount of the appraisal adjustment and the effect thereof on accrued depreciation. For example:

Building—			
Cost		\$100,000	
Accrued depreciation	.	45,000	\$55,000
		<hr/>	
Increase to replacement cost	.	\$ 20,000	
Accrued depreciation	.	9,000	11,000
		<hr/>	
			<u>\$66,000</u>

This scheme should be followed even in the condensed statement. It is not necessary, of course, to display the status of each group of plant assets separately. On the equity side the "reserve for increased replacement cost" should be shown as an appropriated section of earned surplus. The unabsorbed balance of the "capital and surplus adjustment" may well be reported as an addition to the total of the stock equity as otherwise determined. The following is illustrative:

Capital and Surplus—		
Capital Stock . . . . .		\$ x xxx
Surplus—		
Invested in plant . . . . .	\$x xxx	
Reserved for increased replacement cost . . . . .	9,000	
Unappropriated . . . . .	x xxx	x xxx
		\$ x xxx
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .		11,000
		\$ x xxx

**Recording Net Appreciation.** Assume conditions as above except that the appraisal results in an estimated depreciation of only \$24,000 and that the management decides to adopt this estimate, as well as that of replacement cost, as a basis for its accounting. The question at once arises: is a change in total service life implied in this estimate of depreciation? The answer is that an accrued depreciation of \$24,000 on a replacement cost of \$120,000 for a period of eight years indicates an overall life on a straight-line basis of forty years. With this assumption the entries necessary to book the results of the appraisal, and record depreciation and disposition of appreciation for 1941, are:

(1)		
Building—Adjustment to Replacement Cost . . . . .	\$20,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost) . . . . .		\$ 4,000
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .		16,000
To adjust etc.		
(2)		
Building—Allowance for Depreciation (Cost) . . . . .	20,000	20,000
Surplus . . . . .		
To transfer to surplus amount accrued depreciation is found to be overstated as result of increase in total estimated life from twenty to forty years		
(3)		
Surplus . . . . .	4,000	4,000
Reserve for Increased Plant Cost . . . . .		
To appropriate etc.		
(4)		
Operating Accounts . . . . .	3,000	2,500
Building—Allowance for Depreciation (Cost) . . . . .		
Building—Allowance for Depreciation (Adjustment to Replacement Cost) . . . . .		500
To accrue depreciation for 1941		
(5)		
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .	500	500
Realized Appreciation . . . . .		
To accrue etc.		
(6)		
Realized Appreciation . . . . .	500	500
Income . . . . .		
To close etc.		

	(7)	
Surplus . . . . .		500
Reserve for Increased Plant Cost . . . . .		500
To increase etc.		

If it be assumed that the appraisal in no way indicates an error in the original estimate of service life, and it is nevertheless insisted that the results shall be incorporated in the accounting records, the accountant finds himself faced with the necessity of accepting an inequitable distribution of charges in the remaining years of life. As suggested earlier, herein lies the essential objection to the typical appraiser's approach to depreciation; in general he is quite willing to disregard the relation of expired life, in the light of total probable life, to the amount of depreciation accrued at any particular point. If the depreciation for eight years amounts to but \$24,000, and the remaining expected life is only twelve years, it is necessary to adopt a plan by which the balance of replacement cost, \$96,000, is absorbed during this period. The entries required are as follows:

	(1)	
	(As above)	
	(2)	
	(As above, with change in explanation)	
	(3)	
	(As above)	
	(4)	
Operating Accounts . . . . .	\$8,000.00	
Building—Allowance for Depreciation (Cost) . . . . .		\$6,666.67
Building—Allowance for Depreciation (Adjustment to Replacement Cost)		1,333.33
To accrue one-twelfth of unexpired cost (\$80,000) and one-twelfth of unabsorbed increment (\$16,000)		
	(5)	
Capital and Surplus Adjustment—Unrealized Appreciation . . . . .	1,333.33	
Realized Appreciation . . . . .		1,333.33
To accrue etc.		
	(6)	
	(Same as (6) above except for change in amount)	
	(7)	
	(Same as (7) above except for change in amount)	

**Capitalization of Appreciation.** There is a strong feeling in some quarters that the net credit resulting from a plant write-up should be treated as an element of capital surplus or should be formally capitalized by means of a stock dividend or other appropriate process. Those supporting this position view a revaluation as a form of "quasi-reorganization"—a fresh start—which requires a restatement of the stock equity as well as of the fixed assets. (See discussion of significance of appreciation in



preceding chapter.) It is also urged in this connection that a management should not be allowed to "have its cake and eat it too," to display appraisal values in the balance sheet and fail to show their full effect in the income statement. From this standpoint the treatment recommended above, in which the effect of charging operations with depreciation based on appraisal values is finally canceled by the passing of a portion of the appraisal surplus through income and earned surplus, is objectionable. From this standpoint, too, there is no virtue in a careful display of original cost figures, in addition to appraisal values, throughout the life of the property.

Applying the alternative treatment to the example of gross appreciation given earlier results in the following scheme of entries:

(1)			
Building		\$20,000	
Building—Allowance for Depreciation	.	.	\$ 8,000
Capital Surplus from Appraisal	.	.	12,000
To record write-up, including adjustment of accrued depreciation			

(2)			
Operating Accounts		6,000	
Building—Allowance for Depreciation	.	.	6,000
To accrue depreciation for 1941			

Some accountants would probably recommend confining the recognition of the write-up to the net amount of \$12,000. Since, however, depreciation is to be based on the higher valuation there is something to be said for a recording of the gross appreciation and a retroactive adjustment of accrued depreciation.

If the amount of the write-up is formally capitalized through issue of additional shares in the form of a dividend the summarized entries are:

Capital Surplus from Appraisal	.	.	\$12,000	
Capital Stock	.	.		\$12,000

With this further step all trace of the write-up as a separate element is eliminated.

This treatment represents a full recognition of appraised value as a substitute for cost in the handling of the plant accounts and in the computation of periodic depreciation charges. It thus avoids any necessity for preserving the line of distinction between cost and appraised value, and the corresponding separation of the two phases of accrued depreciation. Moreover, by interpreting the net credit resulting from the appraisal as a permanent adjustment of capital there is no need for a segregation of unrealized and absorbed appreciation, or for periodic correction of net income as otherwise determined, and no excuse remains for special appropriations of earned surplus.

On the score of simplicity the procedure under consideration is all to the good. From the standpoint of adequate recognition of the cost basis and full disclosure of pertinent data, on the other hand, the immediate capitalization of appreciation is not satisfactory. Adoption of a policy of charging appreciation to operations, with no accompanying adjustment of profit and surplus figures, results in a record of earnings that fails to satisfy legal requirements and may cause misunderstanding and definite impairment of the rights of particular classes of investors. For example, appreciation is not a charge which can properly be deducted from revenues in computing income available for preferred dividends. The capitalization treatment moves appraisal figures from the status of supplementary information to that of primary accounting data. This is highly objectionable, except possibly in situations which may be viewed as major reorganizations. The estimates of appraisers are often of some importance, but their significance is seldom if ever such as to warrant the complete obscuring of actual cost.

**Exclusion of Appreciation from Income Accounting.** The result of an appraisal may be given some recognition, without permitting any change in the income accounting, by recording the net amount of the difference between the appraised value and cost (or cost less depreciation as booked) in supplementary balance-sheet accounts, the amounts of which are absorbed by systematically reversing the initial entries during the remaining life. Such treatment may be considered particularly where the purpose of the valuation is merely to obtain an estimate of current value in connection with some financing operation. The following entries (assuming conditions as in the example of gross appreciation given earlier) are illustrative:

(1)			
Building—Appreciation . . . . .	\$12,000		
Capital and Surplus Adjustment—Appreciation . . . . .		\$12,000	
To record appreciation			

(2)			
Capital and Surplus Adjustment—Appreciation . . . . .	1,000		
Building—Appreciation . . . . .			1,000
To reflect amortization of appreciation for 1941			

The periodic balances of the supplementary appraisal accounts may be shown under fixed assets and stock equity, respectively, or as additions to balance-sheet totals as otherwise determined.

This procedure is not far removed from that which restricts the recognition of the results of an appraisal to notes or comments submitted with the regular reports.

**Recording Gross Declination.** The building of the M Co., for example, which cost \$100,000, was completed and turned over to the operating

management as of January 1, 1931. The anticipated life is twenty years, and no net salvage value is assumed. As of December 31, 1934, an appraisal is made for the purpose of ascertaining replacement cost and the resulting estimate is \$80,000. The management decides, as in the earlier example, to place the accounts on a replacement-cost basis and to maintain a record of absorbed and unabsorbed declination throughout the remaining service life. Following the scheme outlined above the entries on December 31, 1934, and through 1935 are:

(1)		
Capital and Surplus Adjustment—Unabsorbed Declination	\$16,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost)	4,000	
Building—Adjustment to Replacement Cost		\$20,000
To adjust etc.		

(2)		
Plant Investment Released by Decreased Replacement Cost	4,000	
Capital and Surplus Available for Appropriation		4,000
To reflect release of capital and surplus (if any) invested in plant on account of decreased replacement cost, in an amount corresponding to fraction of estimated life expired		

(3)		
Operating Accounts	4,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost)	1,000	
Building—Allowance for Depreciation (Cost)		5,000
To accrue depreciation for 1935		

(4)		
Absorbed Declination	1,000	
Capital and Surplus Adjustment—Unabsorbed Declination		1,000
To accrue declination absorbed through reduction of charges to operation to replacement-cost basis		

(5)		
Income	1,000	
Absorbed Declination		1,000
To close special income charge to general income account		

(6)		
Plant Investment Released by Decreased Replacement Cost	1,000	
Capital and Surplus Available for Appropriation		1,000
To increase released capital and surplus by amount of absorbed declination for the year		

This procedure, like the corresponding treatment of appreciation, provides for the retention of the record of original cost and the depreciation applicable thereto. The amount of decline in value realized or absorbed each year represents a special loss or income charge which matches the amount by which the charge to operations is reduced below the level of the original-cost basis. The account showing the amount of "investment

released" should be interpreted as a contra to both capital and appropriated surplus, assuming that surplus is present which can be construed as invested in plant. Similarly the account which reports the amount made available for appropriation is labeled "capital and surplus" to indicate the possibility that both elements of the stock equity may be represented in plant. The significance of the transfer from "invested" to "available" net worth is minimized by the fact that as a rule legal capital cannot be appropriated or made the basis of dividends—even when no longer needed in the business—without special action by the stockholders. And aside from this difficulty it would seldom be advisable as a practical matter to attempt to give formal expression in the accounts to the implied realignment of the stockholders' equity resulting from a decline in replacement cost of plant—even when such decline is acknowledged in the property account and related depreciation charges. The entire procedure, it should be remembered, is subject to the limitations inherent in any scheme of accounting that seeks to take cognizance of the changing costs of depreciable assets.

As in the case of appreciation, the basis of the depreciation charge and the amount of the periodic adjustment of income should be clearly reported in the income statement. The following indicates the general form in which a write-down of this type should be presented on the asset side of the balance sheet.

Building—		
Cost	\$100,000	
Accrued Depreciation	25,000	\$75,000
		<hr/>
Decrease to Replacement Cost	\$ 20,000	
Accrued Depreciation	5,000	15,000
		<hr/>
		\$60,000
		<hr/>

The special proprietary accounts used may be reported as suggested by the following:

Capital and Surplus—		
Capital Stock	\$x xxx	
Surplus Invested in Plant	x xxx	\$x xxx
		<hr/>
Investment Released by Decreased Replacement Cost		5,000
		<hr/>
		\$x xxx
Capital and Surplus Available for Appropriation	\$5,000	
Surplus (General Unappropriated Balance)	x xxx	x xxx
		<hr/>
		\$x xxx
Capital and Surplus Adjustment—Unabsorbed Declination		15,000
		<hr/>
		\$x xxx

It may be objected to this presentation that the capital and surplus sections of the stock equity are not clearly separated and that the addition of a portion of capital to surplus, in particular, is unfortunate. This objection can be met only by abandoning the attempt to record "released" plant investment. As noted above, the accruing of estimated released capital in this manner has no legal force, and no very substantial justification from other angles.

**Recording Net Declination.** With the same conditions as in the preceding example except that the appraisal results in an estimate of accrued depreciation of only \$8,000, and hence an implied total life of forty years, the entries given are modified as shown by the following outline:

(1)		
Capital and Surplus Adjustment—Unabsorbed Declination	\$18,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost)	2,000	
Building—Adjustment to Replacement Cost . . .		\$20,000
(2)		
Building—Allowance for Depreciation (Cost) . . .	10,000	
Surplus . . . . .		10,000
(3)		
Plant Investment Released by Decreased Replacement Cost	2,000	
Capital and Surplus Available for Appropriation . .		2,000
(4)		
Operating Accounts . . . . .	2,000	
Building—Allowance for Depreciation (Adjustment to Replacement Cost)	500	
Building—Allowance for Depreciation (Cost) . . .		2,500
(5)		
Absorbed Declination . . . . .	500	
Capital and Surplus Adjustment—Unabsorbed Declination . . . . .		500
(6)		
Income . . . . .	500	
Absorbed Declination . . . . .		500
(7)		
Plant Investment Released by Decreased Replacement Cost	500	
Capital and Surplus Available for Appropriation .		500

If the appraiser's estimate of accrued depreciation is only \$8,000, or 10% of the estimated replacement cost, and the anticipated total service life remains at twenty years, the adjustment of the accounts to the appraisal basis requires a loading of the depreciation charges following the date of appraisal. See example under discussion of recording net appreciation.

The effect of decline in value can be reported in balance-sheet terms,

if desired, without disturbing the income statement. See discussion of similar treatment of appreciation.

**Immediate Absorption of Declination.** Those who defend capitalization of appreciation are supporting, by implication, a policy of immediate absorption of the net declination against capital or capital surplus. The entries under this approach covering recognition of the write-down and accrual of depreciation for the first year following—using the data of the above example dealing with gross declination—would be:

	(1)	
Paid-In Surplus (or Capital Stock)	16,000	
Building		16,000
	(2)	
Operating Accounts	4,000	
Building—Allowance for Depreciation		4,000

Were paid-in surplus insufficient to absorb the write-down a charge to capital stock would be required. If conditions were such that a direct charge to capital stock would not be justified a contra account might be used, pending formal reduction of stated capital or par value in appropriate amount.

In this example the method of recording only the net write-down is followed. If desired the plant account might be credited with \$20,000, with an offsetting charge of \$4,000 to allowance for depreciation.

Aside from its simplicity this treatment has little or no justification. As suggested in the preceding chapter, it opens the door to absorption of plant cost on a large scale without the passing of such cost through either income or surplus; it results in the lowering of recorded operating charges and the increasing of reported earnings (or decreasing of reported losses) over a period of years. By suppressing a section of cost against capital, in other words, the procedure in effect transfers a portion of capital to future income accounts. The policy of immediate charging to capital also ignores the fact that in many cases a substantial part of plant investment is derived through earned surplus. It may be safely concluded that only when there is a thoroughgoing reorganization, and a "fresh start" with respect to both property values and formal capital, should recognition of decreased replacement cost be effected in this manner.

These comments do not deny the fact that conditions arise under which major write-offs of plant cost are proper. See discussion of this topic in the preceding chapter.

**Retroactive Appraisals.** The establishment of the modern program of income taxes resulted in the making of many valuations as of the official date, March 1, 1913, and retroactive appraisals are still common for tax

purposes in connection with the transfer of property by gift and inheritance and other special circumstances. Aside from questions of taxation, moreover, appraisals of both industrial and utility property are often made as of a date preceding the actual period of valuation by some months or even years.

Assume, for example, that in connection with litigation concerning the rights of particular groups of investors an appraisal is required by the court to determine the fair market value of the plant of the R Co. at the time, five years earlier, that the enterprise was merged with the R S Co., and to trace the changes since. At the time of merger the assets in question were taken over at their net book value of \$800,000 (original cost, \$1,000,000, less accrued depreciation, \$200,000). Since the merger the records show plant additions in the R division of \$500,000, retirements (of original property measured in terms of the net values adopted at acquisition), \$240,000, and depreciation charges of \$400,000. The balance in the depreciation allowance is now \$180,000. The appraisal establishes a fair market value for R plant of \$950,000 as of the date of merger. Other data resulting from the valuation are: (1) actual cost of additions since merger, \$520,000; (2) retirements (of original property at market value when property was taken over), \$270,000; (3) net salvage value recovered, \$20,000; (4) total depreciation accrued since merger on fair market value of original property and cost of additions, \$380,000. In view of the authoritative character of the appraisal the management of the R S Co. decides to revise the plant accounts of the R division in accordance with the findings. The general-ledger correcting entries, with a separate showing of each step, are:

(1)			
Plant Accounts—R Division . . . . .	\$150,000		
Appraisal Clearing Account . . . . .		\$150,000	
To correct original understatement of plant value			
(2)			
Plant Accounts—R Division . . . . .	20,000		
Appraisal Clearing Account . . . . .		20,000	
To adjust cost of additions since merger			
(3)			
Appraisal Clearing Account . . . . .	30,000		
Plant Accounts—R Division . . . . .		30,000	
To adjust record of retirements			
(4)			
Allowance for Depreciation—R Division . . . . .	50,000		
Appraisal Clearing Account . . . . .		50,000	
To correct accrued depreciation			
(5)			
Appraisal Clearing Account . . . . .	190,000		
Capital Surplus . . . . .		150,000	
Earned Surplus . . . . .		40,000	
To close temporary account			

The plant accounts of the R Division now show a debit balance of \$1,200,000 (fair value of property taken over, \$950,000, plus additions of \$520,000, less retirements of \$270,000), and the depreciation allowance shows a balance of \$130,000 (the amount accrued by the appraiser, \$380,000, less the amount of retirements after taking salvage into account). In the procedure followed it is assumed that no special losses or gains attach to the recognition of retirements. In this situation the cost of the original property to the R Co. is not important, assuming a genuine transfer to the R S Co. The use of the suspense account to clear the adjustment of surplus merely illustrates the possibility of employing such an account in connection with complex adjustments involving a number of steps. The amount of the original undervaluation is credited to capital surplus to suggest the special character of this element. Under the general circumstances indicated this amount may be subject to the claims of some particular group.

**Continuous Appraisals.** Professional appraisal firms often urge the desirability of continuous appraisal service. Such service provides for bringing the valuation up to date at least once a year. Where this is done, it is easy to see, periodic revision of accounts to acknowledge the results of appraisal is a formidable task, and there is room for very serious doubt as to the advisability of attempting it. In such a situation, in other words, the accountant may well confine his attention to recording costs, retirements, and depreciation based on cost, and the appraiser's report may be treated as an independent record. This recommendation does not deny the significance in various connections of the data compiled by means of a continuous appraisal service.

**Appreciation in Inventories.** In a manufacturing enterprise a portion at least of the depreciation charged to operations finds its way into the inventory accounts. This means that when depreciation is based on a figure in excess of actual cost the periodic balances of work in process and finished goods, on a cost basis, can be objected to on the ground that they include an element of unrealized appreciation. To meet this objection it is necessary to estimate the amount of appreciation in inventories and make a special adjustment to cover this factor. For an illustration reference may be had to the data of the example of recording gross appreciation given earlier in the chapter. Assume that the building of the M Co. is a manufacturing plant. Assume, further, that during the first year following the appraisal the total of all operating charges assignable to manufacturing cost, including factory depreciation of \$6,000, is \$250,000, and that the total manufacturing cost of inventories on hand at the end of the period is \$50,000. Under these conditions it is reasonable to conclude that the amount of depreciation in the inventories is



one-fifth of the total charge or \$1,200, and it follows that the appreciation included amounts to \$200. Following the general scheme outlined in the original example the pertinent entries for the year are:

(1)		
Manufacturing Cost.	\$6,000	
Factory Building—Allowance for Depreciation (Cost)		\$5,000
Factory Building—Allowance for Depreciation (Adjustment to Replacement Cost)		1,000
To accrue depreciation for year		

(2)		
Capital and Surplus Adjustment—Unrealized Appreciation	1,000	
Absorbed Appreciation		1,000
To accrue appreciation absorbed through charges to operation		

(3)		
Absorbed Appreciation	1,000	
Reserve for Appreciation in Inventories		200
Income		800
To set up 20% of converted appreciation as a reserve to cover appreciation in inventories and to close the balance to income account		

(4)		
Surplus	800	
Reserve for Increased Plant Cost		800
To increase special reserve by amount of absorbed appreciation applicable to income for year		

The "reserve for appreciation in inventories" represents a contra to the main inventory accounts, assuming goods on hand to be priced at cost. When the inventories in question pass on into cost of sales, presumably in the next period, the amount of this reserve becomes a credit to the income account as realized appreciation.

A similar type of adjustment may be readily worked out for situations in which depreciation charges based on replacement cost are less than actual cost and it is desired to raise inventories on hand at the end of the period to a full cost basis.

**Appraised Value and Deductible Depreciation.** As a general rule a plant valuation, however complete and convincing, does not afford a basis for changing the total depreciation charges which are deductible for income-tax purposes. Deductible depreciation is supposed to be computed throughout the life of the asset on the basis of actual cost (ignoring a few special cases), without regard to the movement of replacement cost during service life. If a change in estimated life is made the balance subject to depreciation may be absorbed during the remaining life, whether longer or shorter, but no change in the total to be written off is tolerated.

If it is desired to record the effects of an appraisal and at the same time show separately in the accounts the amount accrued for tax purposes, it may be necessary to segregate a special section of the allowance for depreciation for that purpose. In the case of the appraisal of the M Co.'s building dealt with in the earlier discussion of gross appreciation the portion of the periodic depreciation based on cost is also the amount deductible (when applied to revenues) for tax purposes. In the corresponding example of net appreciation, however, where a change in estimated service life is introduced, the amount of the annual charge after the appraisal which is recognizable for tax purposes is only \$1,875—found by dividing net book value on a cost basis at date of appraisal, \$60,000, by the years of remaining life under the new estimate, thirty-two. The depreciation accrued for tax purposes may be segregated in this case by modifying the entries given in the original example as follows:

(1)		
(No change)		
(2)		
Building—Allowance for Depreciation (Cost—Contra)	\$20,000	
Surplus . . . . .		\$20,000
(3)		
(No change)		
(4)		
Operating Accounts . . . . .	\$ 3,000	
Building—Allowance for Depreciation (Cost)		\$ 1,875
Building—Allowance for Depreciation (Cost—Contra)		625
Building—Allowance for Depreciation (Adjustment to Replacement Cost)		500
(5) (6) (7)		
(No change)		

### QUESTIONS

1. Set up skeleton accounts and post the entries given in the example of the recording of "gross appreciation." Do the same for the entries given in the example of "net appreciation." In each indicate the nature of each account used.
2. What difficulty is faced by the accountant who is asked to revise his records in accordance with both replacement cost and accrued depreciation as found by the typical appraisal?
3. With an illustration show how a plant write-up and subsequent depreciation are recorded under the policy of permanent capitalization of the appreciation. Discuss this policy critically.
4. Discuss the reporting of both absorbed and unabsorbed appreciation in the financial statements.
5. How may appreciation be recognized without affecting the income report?
6. Set up skeleton accounts and post the entries given in the examples of the recording of "gross declination" and "net declination." Indicate the significance of each account used. Outline the presentation of the data of this case in the financial statements.

7. "The most simple and most reasonable disposition of the shrinkage in plant account resulting from the recognition of a decline in replacement cost is immediate absorption as a charge to capital surplus." Discuss.

8. What is meant by the retroactive appraisal? The continuous appraisal? Should the effects of such appraisals be recorded in the accounts and statements?

9. With an illustration explain the adjustment covering unrealized appreciation in inventories. Do the same for declination in inventories.

10. Is the amount of depreciation deductible for income-tax purposes affected by an appraisal? Explain fully.

## XVI

### LAND

**Nature of Land Assets.** The main types of land resources are: (1) sites for structures of trading, manufacturing, and other kinds of enterprises; (2) the rights-of-way of railways, power companies, etc.; (3) residual land in mining, lumbering, and other extractive fields; (4) residential land, including tracts in process of being developed and marketed; (5) agricultural land. Lakes, rivers, and other waters owned, and riparian rights, may also be viewed as "land" holdings.

The distinctive characteristic of land is its physical permanence. Unlike wasting resources (see the following chapter) land is ordinarily not subject to exhaustion; unlike plant assets land in general does not deteriorate with use or the passage of time. This means that for accounting purposes land is regularly handled as a nondepletable, nondepreciable resource.

The line drawn is not hard and fast. Agricultural land is not free from erosion, and may suffer a serious and permanent loss in fertility. There are also special cases where other types of land are unfavorably affected from the standpoint of physical condition and usefulness by floods, slides, and other natural processes.

It should not be assumed that physical permanence implies stability of value. All types of land are subject to value changes, and not infrequently the fluctuations of market prices in particular areas are very severe over a comparatively short period. In accounting for land it is traditional practice to retain cost figures in the records without change, but nevertheless the question of revaluation for purposes of periodic reports remains an issue of some importance.

The necessary use of land may be secured (1) through some form of lease, easement, or related contract, or (2) through purchase and outright ownership. In the case of a lease the cost usually takes the form of a recurring service or rent charge and there is no asset to be recognized except to the extent of prepayments. Occasionally a substantial "down payment" is made, subject to amortization over the entire term of the lease, and in this situation the asset acquired by the lessee is measured by such payment and should be described as a leasehold (or in some other

qualified manner) rather than as actual land property. A right-of-way or other special privilege obtained through the granting of an easement by the owner is likewise recognizable as an asset to the extent of the payment made to secure the privilege.

**Cost of Land.** In addition to the purchase price the cost of land should include any of the following classes of charges which are applicable: (1) buying costs, including commissions, title investigation, legal fees, etc.; (2) surveying, clearing, draining, filling, etc.; (3) special assessments. In the case of land undergoing development in the process of distribution, costs of drain pipe, sidewalks, trees, and similar improvements are sometimes included in land account.

Charges incurred in evicting squatters and perfecting title are subject to capitalization where the conditions were understood at the time of purchase and taken into account in the price paid. The cost of clearing a site may include substantial expenditures for wrecking and removing structures on the land as acquired, and assuming that the buyer contemplated removal the charges incurred in the process are a legitimate addition to land cost. If the expenditures were not anticipated, or prove to be greatly in excess of the estimated amount, it would seem to be necessary to treat at least a part of the additional cost as a loss. The amount of any salvage realized in clearing operations should be handled as a credit to the gross cost.

Care must be taken to exclude from land account the cost of excavation and all other charges assignable to structures erected on the property. Where grading and filling operations are necessary because of the special character of the structure to be built the costs of such work are logically a charge to the structure rather than to land. In railway accounting the costs of grading and ballasting right-of-way are carried in separate accounts.

In the case of some types of agricultural land important costs of clearing and development are incurred over a considerable period after acquisition.

Where improved real estate is purchased for a lump sum it is necessary for the buyer to segregate the estimated cost of the improvements, particularly since improvements are normally subject to depreciation. The division may be made by estimating the value of the improvements (on the basis of replacement cost, type of property, physical condition, and other pertinent factors) and treating the cost of land as the difference between such value and the purchase price, or by appraising the land and assigning the residuum to the improvements. Or both elements may be separately appraised by competent parties and the total cost divided in proportion to the respective results. If immediate removal of the im-

provements is contemplated their value as an element of total cost cannot exceed estimated net salvage—a point sometimes neglected by valuation experts. If the buyer expects to use the improvements for a limited time before removal a figure should be attached thereto which reflects the present value of the anticipated services, including any amount finally realizable. If the buyer expects to use the improvements for a considerable period, and pays for the property on this basis, the cost of the land should not be affected if the improvements are used for either a shorter or longer period than planned.

The purchase price of timber land, developed mineral land, and similar properties is usually largely applicable to the timber, ore, or other wasting resource rather than to the land. Nevertheless the residual land is seldom worthless, and a reasonable portion of the total cost should be attributed to it. Viewed as an unproductive and useless asset during the period of the exploitation of the wasting resource, the value of the bare land is the estimated market value at the time the wasting resource is expected to be commercially exhausted, discounted to date. It is more reasonable, however, to treat the residual land as a necessary operating asset, like the site of a manufacturing plant, and from this standpoint the most appropriate measure of the fraction of cost assignable is the estimated market value as indicated by the prices of similar tracts in the same general area which are not affected by the presence of timber or known or possible mineral deposits. Where there are no definite indications of implicit land cost the only feasible treatment is to assign a nominal minimum value to the land account.

Payment for land is often made in the form of securities issued or obligations assumed. All such mediums should be valued on a cash basis rather than in terms of nominal face or par values in ascertaining the actual cost of the property—a point generally ignored in practice. Likewise where the consideration is in whole or in part in other real estate the fair cash value of such property must be estimated in finding the implicit cash price of the property acquired. Where land is acquired without cost through donation, inheritance, or other process the estimated market value at the date of acquisition becomes the basis of record. In the early days of railway construction the companies often received large grants of land without cost, and donations of sites to manufacturing enterprises by interested individuals and municipalities have been common and still occur. Land which has been acquired with "strings" attached under which reversion to the donor is possible either should not be recognized as an asset or should receive qualified recognition, accompanied by a showing of all undertakings and obligations incurred in so far as these can be expressed as liabilities.

**Earnests and Options.** Where some time elapses between the drawing of the agreement and actual transfer of title a down payment is usually made to "bind the bargain." Such payment is a part of the purchase price and is assignable to the cost of the property when the deal is completed. In the interim the amount of the earnest should be accounted for as a deposit or prepayment representing a claim against the vendor and not as the cost of real estate owned (although the item may be reported under fixed assets).

A payment to secure an option is commonly applied in settlement of the stipulated price when the option is exercised and is thus similar to a down payment. If the deposit is forfeited, however, the amount must be written off as a loss. A possible exception arises where the buyer, to ensure the safety of his position while making a full investigation, secures options on several tracts although intending to purchase only one parcel. It can be argued that under these circumstances deposits representing the options that are allowed to lapse should be viewed as either a legitimate buying cost assignable to the land finally acquired or as a general organization cost.

**Purchase of Real Estate—Illustrative Entries.** For example, on June 1 the M Co. secures a thirty-day option on a manufacturing plant at a cost of \$500. There is an old frame building on the site which the M Co. plans to demolish immediately if the transaction is completed. There is also a comparatively new fireproof building on the property which the M Co. plans to use. The option agreement provides that the M Co. may purchase the property during the period of the option for \$100,000, payment to be made as follows: (1) \$4,500 in cash on the day the option is exercised and a definite purchase contract is executed; (2) \$5,000 in cash on July 15; (3) balance of purchase price when abstract of property and deed are delivered by the vendor. The agreement further provides that in making settlement the buyer shall assume a mortgage on the property maturing in ten years, with a face amount of \$50,000 and an interest rate of 5%, and may give a one-year note at 6% for an amount not to exceed \$20,000. The vendor agrees to credit the M Co. with the amount paid for the option if the M Co. acquires the property. On June 30 the option is exercised and the purchase contract prepared. In this contract the terms are as outlined in the option agreement. In addition it is provided that the buyer shall refund to the vendor 50% of the property taxes which were paid by the latter the preceding January and which are treated as applicable to the current calendar year; the total amount of the assessment, including collection fee, was \$3,000. On July 15 the payment is made as agreed. On July 31 the deal is closed. At this time

the M Co. assumes the mortgage and accrued interest for three months, and gives its one-year note dated July 31 for \$20,000 at 6%. The balance, including the amount due the vendor for taxes, is paid by check. The M Co. takes possession of the property on August 1 and begins operations. On August 1 the M Co. sells the frame building mentioned to a wrecking company for \$200 cash, with the understanding that the site must be cleared by August 10. The mortgage holder signs a release which permits removal of the building. After the building is removed the Company spends \$100, cash, to have the area formerly occupied by the building graded for parking purposes. On August 31 it is decided to divide the net cost of the property, exclusive of grading, between land and building on a 50-50 basis.

With these conditions the entries on the M Co.'s books, in simple journal form, are as follows:

June 1		
Option Cost. . . . .	\$ 500	
Bank . . . . .		\$ 500
To record payment for thirty-day option on improved real estate (description or reference); terms (details)		
June 30		
Deposit on Property-Purchase Contract. . . . .	5,000	
Bank . . . . .		4,500
Option Cost . . . . .		500
To record exercise of option and additional payment of \$4,500 on real-estate purchase contract		
July 15		
Deposit on Property-Purchase Contract . . . . .	5,000	
Bank . . . . .		5,000
To record additional payment per purchase contract		
July 31		
Property Purchased . . . . .	100,250	
Prepaid Taxes . . . . .	1,250	
Bank . . . . .		20,875
Deposit on Property-Purchase Contract . . . . .		10,000
Mortgage Payable . . . . .		50,000
Interest Accrued on Mortgage . . . . .		625
Notes Payable . . . . .		20,000
To record acquisition of property per contract, and refund of taxes paid for period July 1 to December 31, of which one-sixth is treated as cost of property and the balance as prepaid operating cost		
August 1		
Cash . . . . .	200	
Property Purchased . . . . .		200
To record proceeds of sale of frame building		
After August 10		
Property Purchased . . . . .	100	
Bank . . . . .		100
To record cost of grading parking lot		



August 31		
Land	50,125	
Factory Building	50,025	
Property Purchased		100,150
To close property clearing account to land and building accounts; building is depreciable from August 1, date of taking possession and beginning use		

The foregoing is evidently a highly artificial example, designed to illustrate a number of possible complications.

**Carrying Charges.** The treatment of taxes and other carrying charges associated with the holding of land is a question deserving of special attention. Under what circumstances, if any, can such charges properly be capitalized as a part of the cost of the property? Where land is in use in business operation—either actively or as a reasonable reserve of property—it is clear that carrying charges are assignable to revenues along with other costs of doing business. Further, the costs of holding land that has been in use but is temporarily idle cannot be treated as deferred charges; such costs represent losses, akin to depreciation of idle plant. On the other hand taxes and other costs incurred during an ordinary period of construction are clearly a part of the cost of property, although there may be some question as to allocation between land and improvements. Similarly the accumulation of charges as an addition to assets during a reasonable period of development and marketing seems to be justified, particularly from the point of view of sound income accounting. In the real-estate field, for example, the subdivider may find it both convenient and proper to view the entire history of a particular parcel—from date of purchase to sale—as a continuous transaction in terms of which costs and profit or loss are to be calculated. Capitalization of carrying charges where unimproved land is held for an indefinite period as a speculative commitment can hardly be endorsed, particularly in view of the fact that the change in the market value of the property—if any—is presumably not affected by, or measured by, the continuing costs incurred.

Should interest be included in capitalized carrying charges? This is a phase of the problem of interest during construction, discussed in another chapter. From the proprietary point of view interest on borrowed money accruing during the period of legitimate cost accumulation can reasonably be interpreted as an element in the investment in property. Inclusion of estimated interest on the funds furnished by owners or stockholders is not warranted—ignoring questions of accounting and valuation in the utility field, where rate-making purposes are prominent—as this would be tantamount to recognition of purely hypothetical earnings. Assuming that a decision is made to capitalize interest on

borrowed money, the amount may be charged to the main asset account or set up under a special head. In any event the amount of interest added directly to land cost should be restricted to interest on mortgages or other liabilities clearly associated with the acquisition or development of the property.

**Special Assessments.** Taxes in the form of special assessments for so-called "local benefits"—sidewalks, paving, sewers, etc.—are usually handled as an addition to the cost of the tract on which the assessment is levied. This treatment seems clearly reasonable where the assessments were anticipated at the date of acquisition and hence have presumably been taken into account in setting the purchase price. Likewise such treatment is justified even where the property is assessed under new conditions developing some time after purchase, provided the resulting benefits contribute definitely to the economic usefulness of the property and the assessment approximates the commercial cost of the benefits. On the other hand, special assessments are not infrequently levied where little or no advantage is derived from the "improvements" by the particular taxpayer or where the cost is quite out of line with the advantage obtained. Occasionally cases are found where the market value of the assessed property is unfavorably affected as a result of the public construction to the cost of which the owner is required to make a contribution.

In the administration of income taxation the general rule is that assessments for public improvements cannot be treated as a deduction in the computation of taxable net income. The effect of such a rule, of course, is to encourage capitalization of the amount of all levies for local benefits as a part of the cost of the property assessed.

Under many circumstances an argument can be made for the treatment of the amount of a special assessment as an amortizable cost rather than an element of nondepreciable land cost. Pavement, water mains, and similar facilities do not last forever, and in so far as the tax is substituted for what would otherwise be a private cost of constructing a necessary but terminable improvement it would seem proper to amortize the tax payment during the estimated life of the related improvement. The fact that the particular taxpayer usually has little voice in determining the date or conditions of replacement is a complication in this connection but would not preclude the establishment of a reasonable schedule of amortization.

**Apportionment of Land Cost.** A tract of land purchased for a lump-sum figure is often broken up into a number of parcels to be used for different purposes, and it is then necessary to spread the total cost in a reasonable manner. Division on the basis of area is often unsatisfactory,

owing to the differences in the characteristics—and hence in the implicit cost values—of the several sections. What is needed is a careful appraisal of each unit for which a distinct reckoning is needed, with an assignment of total cost in proportion to the estimated separate values.

In the real-estate development field, where it is intended to subdivide and sell rather than to hold for use, the most satisfactory basis for the division is the schedule of selling prices, as this schedule presumably reflects a proper recognition of the peculiarities—favorable and unfavorable—of each individual parcel or lot. Other schemes have been suggested but none is entirely reasonable. Area is clearly not a sound basis of allocation and street frontage is little better. An assignment of cost in terms of careful consideration and weighting of location, size, frontage, contour, trees, etc. has little meaning except as it yields the same results as are more systematically obtained through reference to relative selling prices. Prices as originally listed are of course subject to change, and where there is considerable revision other than a uniform percentage markup or markdown a preliminary allocation of cost may require correction.

For an example of apportionment of initial cost in terms of scheduled selling prices assume that the M Co. buys 500 acres of land at a cost of \$500,000 and divides the tract into 600 residential lots, with necessary roads. The lots, varying in size and other characteristics, are priced in four classes as follows:

<i>Class</i>	<i>Number of Lots</i>	<i>Price per Lot</i>	<i>Total Selling Value</i>
A	50	\$4,000	\$ 200,000
B	100	3,000	300,000
C	200	1,500	300,000
D	250	800	200,000
	<u>600</u>		<u>\$1,000,000</u>

The following shows the apportionment of cost based on these estimated selling values:

<i>Class</i>	<i>Number of Lots</i>	<i>Cost per Lot</i>	<i>Total Cost</i>
A	50	\$2,000	\$100,000
B	100	1,500	150,000
C	200	750	150,000
D	250	400	100,000
	<u>600</u>		<u>\$500,000</u>

(The total selling-value list of class A lots, for example, is 20% of the grand total; therefore 20% of the total cost should be spread over class A lots.)

To some extent the costs of the improvements made by the subdivider—draining, roads, walks, sewers, trees, etc.—can be assigned to particular lots on the basis of physical connections. Thus the cost of filling and grading certain areas can be considered as directly applicable to the lots affected. Improvements such as roads, on the other hand, are largely for the benefit of the entire tract and are not assignable in terms of frontage or other physical basis. Sidewalks likewise have joint aspects; not all of the sidewalk construction contiguous to a corner lot, for example, can be interpreted as a part of the cost of such lot. For the cost of improvements as a whole it is fair to say that relative selling prices afford the most satisfactory basis for allocation.

Taxes during development assessed on a tract as a whole should be apportioned on the same basis as other charges. Where the assessment is levied in terms of the individual lots, however, it is probably expedient to adhere to the official distribution, even if such distribution is not altogether sound. Interest charges which have been included in land cost may be spread in proportion to relative selling values or, what amounts to the same thing, in terms of relative costs as assigned exclusive of all charges other than interest. Credits representing incidental offsets or revenues should be apportioned in the same manner as are the joint costs (except where clearly assignable to particular parcels).

**Installment Purchases.** Like other fixed assets land is frequently acquired on the installment-payment plan. Under the typical form of contract the vendor gives possession immediately but retains title until the entire purchase price has been paid.

From the buyer's standpoint the principal question is: Should the entire cost of the property be recorded on the books at the outset, with the unpaid balance treated as a liability, or should an asset be recognized only to the extent of the payments made until such time as ownership of the property is secured through completion of the process of payment? Assuming that the vendor retains title the latter treatment conforms more fully to the legal conditions involved. Strictly speaking, *real estate* has not been purchased until transfer of title is effected; the asset resulting from the payment of installments is simply a "deposit on purchase contract." On the other hand the former treatment is the more satisfactory from the standpoint of operating management. If the property in question has come into the buyer's possession and control, and is being used in operation, it is administratively expedient to set up the entire cost as an asset, notwithstanding the fact that transfer in the legal sense has not been completed. Acceptance of this procedure, moreover, has the advantage of compelling explicit recognition of the unpaid balance of the contract as a liability.

It should be added that possession and right to use are not in themselves conditions which justify recognition of the property involved as an asset. In the case of the ordinary lease agreement, for example, complete possession and control may be secured by the tenant, but no asset is present except to the extent of prepaid rent. The treatment indicated above is allowable only where the property is acquired under a binding purchase agreement.

If the full cost of the property being acquired is recorded in the accounts there remains the possibility of compromising in the balance-sheet presentation by showing the unpaid balance as a contra on the asset side rather than as a full-fledged liability. (See discussion of installment sales below.) If only the amount paid to date is recorded as an asset it is advisable to indicate the extent of the commitment by a footnote in the financial statement.

Assuming that the property acquired is immediately placed in use the interest accruing on unpaid balances may not be included in the cost. Such interest, like interest on other obligations, is chargeable to earnings. There is likewise no ground for inclusion in property cost of taxes and other associated charges during the term of the purchase contract, unless there is a period of preparation for service or other disposition involved. If the contract calls for payment in a series of installments without interest the true cost of the property is measured by the present cash value of the series, and the difference between such value and the total of the payments is the amount of interest implicit in the transaction. For example, if the contract price is \$20,000, payable in ten quarterly installments of \$2,000 each, with no explicit provision for interest, and it would have been possible to have acquired the property by an immediate cash payment of \$18,500, the asset account should be charged with only \$18,500 and the difference between this amount and the contract price, \$1,500, absorbed as interest. In practice this point is often neglected, with resulting overstatement of property cost.

**Installment Sales.** From the point of view of the vendor the use of the installment contract in disposing of real estate raises a number of problems, particularly in connection with the determination of taxable income by the so-called "installment method." For most concerns engaged in developing and marketing subdivisions and similar forms of real estate the reporting of income in terms of collections rather than sales has a special appeal. In this field sales often fluctuate sharply and collections are spread over relatively long terms, and with these conditions the assignment of the entire income attaching to each transaction to the year of sale may result in an embarrassing schedule of tax assessments. Likewise in the case of the casual sale of real property on the installment

plan by enterprises in other lines the measurement of income on the basis of collections has considerable justification.

According to the prevailing Federal income-tax regulations the installment method of reporting income on sales of real property is applicable only to transactions in which not more than thirty per cent of the selling price is received in cash or other assets, exclusive of the obligations of the purchaser, during the taxable year in which the sale is made. The proceeds of any of the buyer's obligations collected or otherwise disposed of during the year must be included in the total received. It is not necessary for the vendor to retain title in order to have the right to report income on the installment basis. The amount to be returned as income in any taxable year under the installment method is defined as that percentage of the collections made during the year "which the total profit realized or to be realized when the property is paid for bears to the total contract price." The amount of a mortgage or any other obligation given by the buyer is viewed as a part of the contract price, but the amount of any lien attaching to the property when sold (to the extent that it "does not exceed the basis to the vendor of the property sold") is deducted from the stated selling price in finding the "total contract price" for the purpose of tax calculations. It has been held by the government, however, that where the vendor places a mortgage on the property after the sale, with the expectation that such obligation will be assumed by the buyer when his indebtedness has been reduced to the amount thereof, the vendor must treat the assumption of the lien by the vendee as the receipt of a like amount of cash, which means that the contract price is not affected by the action of the vendor in mortgaging the property. It may also be assumed that where the agreement contemplates final acquisition of an unencumbered property by the buyer the amount of any lien outstanding at date of sale does not affect the calculation of taxable income. In the case of "dealers" in real estate, commissions and other selling costs must be deducted in the year of sale (the year of payment, where the books are not kept on the accrual basis). This is unsatisfactory procedure; if income is to be reported in terms of collections all applicable charges should be correspondingly spread. It should be added that the government permits those other than dealers to follow a procedure which amounts to an installment apportionment of selling costs.

To illustrate the application of the installment method to the measurement of taxable income on land sales for a dealer in real estate, assume that the R Co. in a particular year sells 100 lots to various parties on the installment plan at \$750 each. Each buyer makes a down payment of 10% and agrees to pay \$15 per month for forty-five months, with in-

terest on unpaid balances at 6%. The cost of the lots, including all assignable charges, is \$500 each. There is an outstanding mortgage of \$15,000 applicable to the entire tract, but the R Co. agrees to secure the release of each lot when 80% of the price has been paid. Title is retained by the vendor until payment is made in full. The amount collected during the first year, exclusive of interest, is \$16,500. Commissions and all other operating charges incurred total \$7,500. In this situation the vendor expects to collect the entire selling price, not the difference between the amount of the mortgage and such price, and selling price and "contract price" for tax purposes are therefore identical. The amount of taxable "gross income" for the year of sale is computed as follows:

Sales (and total contract price)	\$75,000
Cost of land	50,000
Gross income to be realized.	<u>\$25,000</u>
Collected on contracts during year	<u>\$16,500</u>
Gross taxable income for year (25,000/75,000 of \$16,500)	<u>\$ 5,500</u>

The total of commissions and other charges is \$7,500 and if this amount is treated as an allowable deduction for the year the result is a net loss of \$2,000, again ignoring interest. This illustrates the unreasonableness of the prevailing interpretation of the installment method. Under an ideal procedure all charges applicable to the sales of the current period, including the estimated costs of collection, would be deducted in computing the total income to be realized. Applying this treatment to the data given, with assumed additional costs of \$2,500 to be incurred, gives results for the first year as follows:

Sales	\$75,000
Cost of land	\$50,000
Commissions and other charges incurred	7,500
Estimated costs to be incurred	2,500
Net income to be realized.	<u>\$15,000</u>
Collected on contracts during year	<u>\$16,500</u>
Net income realized for year (15,000/75,000)	<u>\$ 3,300</u>

To vary the example assume that the K Co., not a real-estate concern, sells a tract of land which cost \$50,000, and on which there is a mortgage of \$20,000, for \$75,000. Title passes immediately. The buyer pays \$16,500 down, assumes the mortgage, and gives a series of five notes of \$7,700 each, payable in from one to five years from date of sale. The commission and other charges directly connected with the sale total

**\$4,000.** With these conditions the taxable income on the transaction for the first year, under the installment method of reporting, is calculated as follows:

Selling price . . . . .	\$75,000
Commissions and other charges . . . . .	4,000
Net proceeds . . . . .	<u>\$71,000</u>
Cost of land . . . . .	50,000
Total profit to be realized . . . . .	<u>\$21,000</u>
Selling price . . . . .	\$75,000
Mortgage assumed by vendee . . . . .	20,000
"Total contract price" . . . . .	<u>\$55,000</u>
Vendee's notes payable in subsequent years . . . . .	38,500
Amount collected during current year . . . . .	<u>\$16,500</u>
Gross taxable income for current year (21,000/55,000) . . . . .	<u>\$ 6,300</u>

For further discussion of the cash basis of recognizing revenue see Chapter XX. For a full consideration of the accounting procedure associated with installment sales see Chapter XXX of *Essentials of Accounting*.

**Repossessions.** In the case of sales of real property on the installment plan, and for which the vendor has elected to report income on the basis of collections, the prevailing income-tax regulations governing repossessions are not in accord with the underlying conception of the installment procedure. Upon the reacquisition of the property sold, in the event of default by the buyer, the regulations require that the vendor recognize gain or loss in the amount of the difference between the fair market value of the property reacquired and the amount by which the obligations of the purchaser satisfied or discharged in reacquiring the property exceed "the income which would be returnable were the obligations paid in full." This rule must be applied whether title to the property has been retained by the vendor or transferred to the purchaser. The effect of this requirement—assuming that fair market value at date of repossession corresponds to original sale price—is to force the vendor to treat the original transaction as a completed sale and recognize income thereon in full, notwithstanding the fact that there has been no effective realization aside from the excess of collections prior to default over selling and other costs incurred.

For example, land which cost \$2,200 is sold for \$5,000. The vendor is not a dealer in real estate. Selling costs amount to \$100. The buyer pays 10% down and gives notes for the balance. The following year the buyer defaults, without making any further payments. The property is



recovered at a cost of \$100, and the obligations of the buyer are canceled. There has been no impairment of physical condition. Under these circumstances the income to be reported in the year of sale according to the installment method as prescribed is found as follows:

Selling price . . . . .	\$5,000
Selling charges . . . . .	100
Net proceeds . . . . .	<u>\$4,900</u>
Cost of property . . . . .	2,200
Total profit to be realized . . . . .	<u>\$2,700</u>
Income in year of sale (2,700/5,000 of \$500) . . . . .	<u>\$ 270</u>

The gain (in this case) upon repossession is determined as follows:

Value of property when reacquired . . . . .	\$5,000	
Repossession expenses . . . . .	100	\$4,900
Face amount of buyer's obligations canceled upon repossession . . . . .	\$4,500	
Amount of income returnable had obligations been satisfied in full . . . . .	2,430	2,070
Gain upon repossession . . . . .		<u>\$2,830</u>

The basis of the property for subsequent determinations is the fair market value at repossession.

A more reasonable treatment is that provided in the tax regulations for repossession following "deferred-payment sale of real property—not on the installment plan" where title is retained by the vendor. Here the taxable gain or deductible loss upon repossession is the difference between the net amount received to date less recovery costs and the sum of the amount previously reported as income and the estimated cost, if any, of restoring the property to the condition in which it stood at the time of sale. Applying this formula to the example given above results in a taxable gain at repossession of only \$30, computed as follows:

Amount received . . . . .	\$ 500
Selling and repossession costs . . . . .	200
Net amount realized . . . . .	<u>\$ 300</u>
Income previously returned . . . . .	270
Gain upon repossession . . . . .	<u>\$ 30</u>

**Exchanges of Real Estate.** Both land and improved realty holdings are often exchanged for other real estate, with or without "boot" in cash or securities. As in the case of installment sales the regulations governing income-tax determination have become a major factor in the inter-

pretation of such transactions. Where property exchanged has been held "for productive use in trade or business or for investment," and the property received is of similar character, the general rule provides that no taxable income arises unless money or some other additional consideration is involved. In its application to exchanges of real property this rule has been interpreted broadly to free from taxability almost all transactions in which one parcel is traded "even" for another, by a party other than a dealer, without regard to the degree of similarity. Thus if a farm is exchanged for an apartment house, with no additional consideration, there is no profit or loss to be recognized for either party as far as the tax return is concerned; and if the transaction is recorded on this basis the entries simmer down to attaching a new description to the book value of the original holding.

Where money, securities, or other form of dissimilar property is included in the exchange of real estate the gain if any realized by the recipient becomes taxable income in an amount not in excess of the sum of the cash, securities, etc. received, and the tax basis of the property acquired, for the purpose of subsequent reckonings, is the same as that of the property parted with decreased by the amount of money received and increased by the amount of gain recognized on the exchange. The R Co., for example, exchanges a piece of land which cost \$50,000 for another parcel with a fair market value of \$60,000, securities worth \$5,000 and \$2,000 in cash. The commercial gain in this situation is \$17,000, but the taxable income is restricted to \$7,000. The basis for income-tax purposes of the property received is that of the property transferred, \$50,000, less the amount of money received, \$2,000, plus the amount of gain recognized, \$7,000, or a total of \$55,000. Deducting from this amount the fair market value of the securities received leaves a tax-basis for the new parcel of land of \$50,000, the same as that of the parcel exchanged.

It should be borne in mind that aside from income-tax considerations the proper accounting for an exchange recognizes the fair market value on a cash basis of the property received (preferably as measured by the fair market value of the property given in exchange), closes out the book value of the assets delivered, and reports the difference—after recognition of all associated charges—as income or loss. It should also be noted that the necessary data for tax purposes may be accumulated in supplementary records, without disturbing the regular accounting procedure.

For a discussion of the type of exchange referred to in tax regulations as an "involuntary conversion" see Chapter X.

**Land Amortization.** Ordinarily land is not considered to be subject to depreciation or depletion. The notable exception is agricultural land, which may suffer loss of fertility or exhaustion due to use and erosion.

Where crops are rotated and fertilizers are effectively applied it is usually assumed that there is no exhaustion to be recognized. (Ideally, perhaps, the utilization of plant foods and the periodic restorations should be accounted for as adjustments of the land account.) Where, on the other hand, a single crop like tobacco or cotton is raised year after year, without adequate expenditures to maintain the property (assuming this is possible), a systematic write-off is necessary to a proper income accounting. Division of the total cost of the property between the amount applicable to residual land and the element subject to depletion is an essential step in setting up a scheme of accounting for soil exhaustion.

In current plans covering costs of facilities acquired for "defense" purposes it is apparently intended that land cost, as well as cost of depreciable plant, shall be amortized. What effect this will have on taxable income and title to property is not yet fully determined.

In the illustration given on page 363 an item of grading was included in total land cost. Such a special element of cost would be subject to amortization where the expenditure was incurred to facilitate a terminable use or where it was expected that the physical conditions of operations would require the incurring of the expenditure from time to time.

The cost of a terminable leasehold or easement is amortizable during the contract life. Where there is an option to renew for a specified period either the maximum or minimum term may be employed, but in general it is expedient to assume that the cost should be absorbed during the minimum life.

For example, the M Co. leases a tract of land for a fifteen-year period, making a lump-sum payment of \$19,600.00 in lieu of a semiannual rental of \$1,000.00. Amortized on the straight-line basis the cost of the leasehold would be absorbed in operating charges in the amount of \$653.33 per half-year. Using the compound-interest method of spreading—a method particularly appropriate to this type of situation—and assuming an interest rate of 3% per half-year period, the amortization for the first six months is \$411.98. (Turning to Table 3 in Chapter XXVIII one finds that the amount of the deposit which is required at the end of each period to accumulate to \$1.00 in thirty periods at 3% per period is 2.101926 cents. Multiplying this amount by 19,600 gives \$411.98.) The amortization for the second half-year under this procedure is \$424.34 (the first amortization plus 3% thereof). And so on. In practice the straight-line method is commonly employed.

**Land Appraisal.** Although it is generally considered to be good practice to retain the cost of land on the books indefinitely occasions arise which afford some justification for revaluation, and sometimes revision of the recorded figures may be in order. Land appraisals, like appraisals

of other property, are needed in estimating value in connection with purchase and sale, exchanges, leases, financing, reorganization, estate settlement, public condemnation, taxation, rate-making, etc. An appraisal may also be desirable in making decisions with respect to major operating programs and methods of utilizing property which are from time to time proposed.

The principal indications from which estimates of land value are derived are the prices at which similar parcels in the same territory are being transferred and the earning power of the property. A major difficulty in using market prices is to find quotations for tracts reasonably comparable with the one under consideration. Even in the case of agricultural land a considerable range of values is often found in a relatively small area due to differences in fertility, drainage, and other special factors, and for urban property—particularly in the business sections—the variation is sometimes very sharp within a few blocks. The effect of improvements must of course be isolated in making comparisons. The inactivity of the market for real estate presents an additional difficulty; for a considerable period there may be no transactions of importance in a particular district.

Earning power is especially important in the valuation of land, the supply of which is limited by natural conditions (although the amount of the particular type of land commercially available is often not rigidly fixed). In other words the approach to land value is in general through income rather than cost of production. Estimating the earning power of the particular parcel of land, however, is likely to be a very difficult matter. The income of the typical business enterprise is a conglomerate return on all the facilities and resources of the concern, and any allocation of such income to particular assets is bound to be highly arbitrary. The estimate can be more readily made for real estate which has a distinct income in the form of a regular rental, especially where the amount is settled by contract for a considerable period.

In the appraisal of such property as railway right-of-way in rate cases an effort has been made to make use of the conception of replacement cost. The usual procedure involves (1) estimating the values of contiguous land and (2) calculating the cost of acquisition in the light of such values and the premium which presumably would have to be paid to secure a strip traversing farms and other properties.

**Declination of Land Value.** Any tract of land is subject to decline in value from such causes as shifting population, impairment of transportation facilities, and relocation of enterprise. The decline seldom if ever occurs, however, in a regular manner over a period of years, and hence there is no basis for a systematic write-down. In defending their willing-

ness to ignore falling land values, moreover, accountants point out that declination is an unrealized loss and is not an allowable deduction in the tax return. It is also sometimes argued that a decrease in market value does not reflect a loss of utility, at least in the case of urban land, and hence need not be taken into account. From the standpoint of the balance sheet if not from that of the income report, on the other hand, there is some objection to a continued reporting of land cost where there has been a serious decline which can be measured with reasonable accuracy. Decline in value—particularly where based on changing local conditions—presumably does indicate an impaired commercial usefulness and should not be overlooked by the management in the event that the proper employment of the property becomes a question of immediate concern.

Where an estimated decline in land value is booked the adjustment should be credited to a special account so that the actual dollar cost is not obscured. The balance of the special account may then be treated as a contra in the balance sheet, as shown below:

Land cost . . . . .	xxx
Estimated declination . . . . .	xxx
Net carrying value . . . . .	xxx

The charge should likewise be handled as a special offset to the proprietary equity as otherwise reported, and not as an income deduction. (See discussion of plant valuation in earlier chapters.)

**Appreciation.** Land appreciation, like unrealized decline in value, has a questionable status from the standpoint of the accounts, and for similar reasons. At the same time it must be recognized that increase in land value is a familiar aspect of all growing communities and that where the change is marked it can hardly be ignored by the owners, managers, or other interested parties. It is true that action with respect to land utilization is often restricted by the existence of specialized improvements, but it is also true that the movement of site value may affect maintenance policy and plans with respect to rebuilding, and in an extreme case may justify sale of the property and relocation at an early date.

In measuring enterprise earning power computations based on the cost of land resources where cost is entirely out of line with current values may be seriously misleading.

As a basis for long-term borrowing the current market value of land held is undoubtedly of much greater importance than its cost to the present owner.

It is agreed that where appreciation is recorded in the accounts and statements care should be exercised to isolate the effect and to use labels not subject to misunderstanding. Subsequent income-sheet accounts are not affected by the recognition of a change in the value of land, generally a nondepreciable asset. In other words land write-up (or write-down) is a balance-sheet adjustment.

Aside from legal complications cash dividends should not be appropriated from "surplus" arising from land appreciation, as the enhancement does not represent realized or disposable income. A possible exception arises where a concern holds unproductive land for speculation over a long period and desires to realize on appreciation without relinquishing title to any portion of the property. In such a situation funds secured from borrowing might be disbursed pro rata to the stockholders to the extent of the unquestioned appreciation without impairing capital as measured by the current value of property. Basing stock dividends upon appreciation is also objectionable to the extent that such a "dividend" implies the existence of earned surplus, although in the eyes of the law such transactions are not as a rule considered improper.

See discussion of plant appreciation in Chapters XIV and XV.

Increase in value in some cases is associated with expenditures made in draining, filling, restoring fertility, etc., which have been charged to operations. In such circumstances an adjustment to the extent of the charges actually incurred is in order as a correction of cost, and the amount should be charged to property account and credited to earned surplus.

A lease contract sometimes comes to have a market value even if there is no cost involved. In general, however, there is no need for a recognition of such a value unless the contract is assigned for a consideration.

**Accounts and Records.** In accounting for land holdings it is desirable to maintain subsidiary records in which the cost is classified in terms of individual lots or parcels as shown by the property-tax assessment rolls. A second classification in accordance with function or use is also desirable in some instances. After original cost has been accumulated the land records of most concerns are relatively inactive, although entries are occasionally required to record special assessments, transfers, or the effect of appraisal. In the case of companies engaged in developing and marketing urban land, on the other hand, the transactions affecting land accounts are numerous, and a specialized procedure is developed. At the outset an account is opened for each separate purchase, and as development proceeds supporting records are employed to cover taxes and other carrying charges, improvement costs, incidental revenues, etc.

When the tract is subdivided a separate card or sheet is required for each lot, to which is transferred an appropriate portion of the total cost incurred to date. This facilitates the determination of profit or loss in terms of individual sales.

### QUESTIONS

1. List the principal types of land holdings. What is the distinctive characteristic of most land property from the accounting standpoint? What are the principal ways in which the use of land may be secured?

2. List the principal components of land cost. Is the cost of excavating for a foundation assignable to land? The cost of filling low ground and planting trees in the development of a residential area? The cost of clearing agricultural land? The cost of grading and seeding the grounds around an office building? The cost of fertilizer applied to a run-down farm?

3. How should land cost be isolated where improved real estate is purchased for a lump sum? To what account should the cost of removing a building from a recently acquired lot—as contemplated at time of purchase—be charged?

4. How should the residual land value of a tract of timber be determined and accounted for?

5. How should the cost of property be measured when the consideration is in the form of capital stock or other securities?

6. How should land acquired without cost, by donation or otherwise, be treated in the accounts?

7. Distinguish between “earnests” and “options.” Under what circumstances may forfeited option money be included in the cost of property?

8. Discuss the treatment of taxes and other carrying charges in the case of: (1) land actively in use; (2) land temporarily idle; (3) land in process of development or distribution. Give special attention to the treatment of interest.

9. Discuss special assessments for local benefits as an element in land cost.

10. State and illustrate the most reasonable method of allocating the total cost of a tract of land to the individual lots or parcels into which the tract is divided. Discuss the allocation of the cost of improvements such as trees, walks, etc.

11. What is the principal accounting question facing the buyer in an installment purchase of real estate? Discuss.

12. With an illustration explain the use by a real estate dealer of the installment method of computing profit or loss on land sales for income-tax purposes. From the standpoint of sound periodic income reporting what is the principal objection to the interpretation of this method as prescribed by the Federal tax administration?

13. With an illustration show how profit or loss on repossession is computed.

14. Give an illustration of a “tax-free” exchange of real property. Ignoring income-tax considerations what is the proper treatment of such an exchange?

15. Under what circumstances is land cost subject to amortization? Discuss the amortization of a leasehold.

16. What are the principal occasions for land valuation? How would you go about estimating the fair market value of a farm? The site of an office building? A railway right-of-way?

17. Should declination in land value, accompanied by no physical change, be recognized in the accounts?

18. “Land should not be written up even where the increase in value is unques-

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tioned. The increase may mean simply higher taxes with no increase in earning power. The business receives no benefit until sale or liquidation occurs. Appreciation of land makes the wheels turn no faster and brings about no increase in selling prices or total sales. Operations based on cost value may show a fair return whereas on the basis of appreciated value the return may be abnormally low." Discuss critically.

19. Outline a scheme of records for a company engaged in developing and marketing a tract of residential land.



## XVII

### WASTING ASSETS

**Nature of Wasting Assets.** Unlike land, which is generally viewed as permanent property, wasting assets are those natural resources that are subject to exhaustion through the process of extraction or use. The principal types are: (1) mineral deposits; (2) oil and gas resources; (3) timber; (4) fisheries and stocks of game. Under some circumstances orchards, groves, etc. may also be considered wasting assets. Agricultural land, as indicated in the preceding chapter, can be operated in such a manner as to become gradually exhausted.

Even more important than exhaustibility as the fundamental characteristic of the wasting resource is the impossibility or impracticability of restoration or replacement. All kinds of buildings and equipment are exhaustible in the sense that they have limited useful lives, but as a rule such properties can be renewed or replaced as occasion requires. Deposits of coal, iron ore, and other minerals cannot, in the nature of the case, be replaced; the same is true of oil pools and gas reserves. Timber is replaceable, but in practice specific tracts are seldom renewed after cutting and the total stock has been rapidly depleted. Maintenance of the stock of fish and game is difficult but not entirely out of the question. Soil fertility likewise can be maintained or restored under favorable conditions, and plantations and orchards can be replanted and—in time—restored to production.

The particular company engaged in exploiting wasting resources, it is true, may continue in operation almost indefinitely through development work and acquisition of new properties. The enterprise, that is, may have a longer life than the period required to exhaust the commercial content of the specific unit of property.

The typical wasting asset such as a mineral deposit is physically utilized or consumed in the process of extraction and becomes embodied, in part, in the final product. A building or unit of equipment, in contrast, is used throughout its useful life to render services and—although subject to deterioration—is never converted in the physical sense.

**Cost of Wasting Assets.** The cost of mining properties and other wasting assets is peculiarly subject to overstatement due to the wide-

spread practice among the operating companies of issuing securities of uncertain value to the original owner or lessee and charging property accounts with the nominal amount of the consideration. In some cases satisfactory evidence of actual cost, on a cash basis, is afforded by the quoted market value of the stock shortly after issue; another indication is the amount invested by the preceding owner (although it is true that exploration and development may have demonstrated a market value far in excess of costs incurred by the vendor). A skeptical attitude toward nominal cost is especially needed where the original owners are in control of the operating company—where the “sale” to the corporation is not an outright transfer between clearly independent parties.

The importance of establishing true cost goes beyond the question of the integrity of the original report of financial position; if cost is misstated the charges to revenue representing depletion will be in error throughout the life of the property. The firm attitude of the Bureau of Internal Revenue in this connection is expressed in the statement that “no fictitious or inflated cost or price will be permitted to form the basis of any calculation of a depletion or depreciation deduction.”

A portion of the total cost, as pointed out in the preceding chapter, is assignable to residual land. If any improvements—mills, shafts, derricks, etc.—are included in the property taken over the amount of cost applicable to such assets must be estimated and segregated.

The cost of the wasting resource—the amount subject to depletion—must sometimes be allocated to a number of mines, wells, or other operating units. Where the conditions permit a separate appraisal of each section or area the data of such appraisal afford a satisfactory basis for the assignment; in other circumstances it may be necessary to subdivide depletable cost in a highly arbitrary manner.

**Development Charges.** The cost of development is likely to be a major element of the total cost of property in mining, lumbering, and other extractive lines. In mining, for example, exploratory drilling is often required in finding and outlining deposits. Under some conditions it is necessary to strip off the overburden for a considerable area and depth before extraction can begin. The work of sinking shafts may also be viewed as development, although a part of the cost thereof is presumably assignable to depreciable facilities. Development charges, like the initial cost of the property, should be allocated to particular mines, wells, or other operating units, wherever feasible, as a part of the investment subject to systematic absorption through the period of production. This does not mean that such costs must be retained on the books until revenues appear in substantial volume. Where the work of developing a particular project proves fruitless the cost incurred, including all ap-

plicable charges, should be treated as a loss as soon as failure becomes apparent.

It is standard practice to record all developmental charges as additions to the cost of depletable resources, or as a special deferred item, prior to the beginning of production on a commercial scale, and to absorb later expenditures on this account currently. This is somewhat objectionable, particularly for situations in which the work of development is continued on a large scale after the process of extraction is launched. Ideally all costs definitely applicable to resources that will not be exploited until a later period should be deferred, regardless of the extent of the current output. The entire amount of expenditures incurred in drilling additional wells, opening new bodies of ore, etc. is clearly subject to capitalization. So-called development connected with units that are in production, on the other hand, may be chargeable in part to operating expense. Where the costs logically assignable to future revenues are difficult to isolate, and are not large in amount, the most expedient treatment is immediate inclusion in cost of production.

Carrying charges, akin to development costs, are especially important in lumbering. A stand of timber requires protection from fire hazard, disease, and theft, and the costs of patrolling, removing underbrush, etc., together with insurance and administrative charges, are accordingly assignable to property account—during the process of cutting as well as earlier. The fact of timber growth, moreover, may justify a prolonged period of holding and a correspondingly large accumulation of carrying charges.

If all outlays during a period of development are capitalized the incidental revenues realized from small shipments made while the preliminary work is under way may be treated as an offset to the costs incurred. The alternative procedure, more refined but also more difficult, is to credit revenues and make an appropriate assignment of costs thereto.

A complete record of the cost of property, including assignable development and carrying charges, should be maintained even where estimated market values are introduced as a basis for tax reckonings or for some other special purpose.

**Valuation of Wasting Assets.** Like plant property, wasting resources must be valued in connection with purchase and sale, financing, etc. A special condition which may justify the appraisal of such assets as mines and oil wells is the increase in the known reserves resulting from exploration and development. Cases are numerous in which the market value of a particular area has been greatly increased by the discovery of new deposits or by demonstration work on earlier discoveries, and in such

situations there is much to be said for a careful revaluation. The fact that under certain circumstances fair market value "at the date of discovery or within thirty days thereafter" has limited approval as a basis for depletion calculations for income-tax purposes has some influence in this connection.

The fundamental estimate in the valuation of wasting resources is that of the commercial content or stock of coal, oil, timber, etc. present in the property—the number of units profitably recoverable in view of the location and character of the material, existing methods of extraction, shipping facilities, and all other pertinent factors. Having found the total probable output the next step is to calculate the margin of income per unit. This evidently involves estimating both selling prices and costs of extraction and marketing. An important consideration here is the length of time which will be required to exhaust the property; where a considerable period is involved it may not be reasonable to assume that the current price of the product will persist throughout. It is also necessary to take into account the effect upon operating expenses of increasing depth or other changing conditions of extraction. With the margin per unit determined the final steps consist of the calculation of the annual operating net, before depletion, and the present value, at an appropriate rate, of the anticipated series of returns. As a rule it is not feasible to go beyond an estimate of average output, cost, and net, but occasionally greater refinement may have some significance (in a situation, for example, where increasing cost and decreasing output can be confidently predicted). The rate of return employed in the computation should vary with the general risks attaching to the industry and the special uncertainties associated with the particular venture.

Assume, for example, that test drilling on a particular tract of coal land demonstrates a merchantable content of 1,000,000 tons. It is estimated that costs of stripping and extracting will average \$1.25 per ton and that the average price which can be expected for the product is \$1.50 per ton. It is also estimated that at the rate of extraction planned annual output will amount to 200,000 tons, which means that the property will be exhausted in five years. The resulting annual net (not considering depletion) is \$50,000, and the value of the tract (exclusive of residual land) is therefore the same as the present worth of a five-year annuity of \$50,000 at a rate suitable to the conditions.

In some types of mining it is possible to estimate recoverable content with reasonable accuracy; in other cases the estimates can be little better than guesswork. Reserves of coal and iron companies, for example, are in general more readily determined with respect to both extent and character than those of concerns engaged in mining precious metals. The

total output of a particular oil well, or of a given area or field, is usually highly uncertain, especially in the early stages of operation. For a stand of timber the commercial lumber content can be approximated by careful cruising.

**Depletion—Definition and Significance.** In physical terms depletion represents the using up or exhaustion of such properties as mineral deposits, oil pools, and stands of timber; from a value standpoint depletion is the expiration of the cost (or, in some cases, the estimated value) of wasting resources as a result of the process of production. Aside from the fact that both refer to the absorption in operating charges of the costs of long-term commitments, there is little similarity between depletion and depreciation, although the terms are often coupled. A wasting asset is essentially a store of raw material, generally under conditions where there is no deterioration or other physical loss with the passage of time. As in the case of inventories the cost of this material should be closed out as the supply is utilized. Depletion, accordingly, varies directly with the volume of output and is completely arrested—in the physical sense, at any rate—whenever there is a cessation of activity. A plant asset, on the other hand, is employed as a unit to furnish services throughout useful life, and is physically consumed only to the extent of the wear and decay suffered. Further, the influences that bring about eventual retirement of plant tend to persist regardless of the ebb and flow of production, and this fact cannot reasonably be disregarded in accruing depreciation.

The practice of entirely ignoring depletion in the accounts and statements, common until a few years ago, is highly objectionable. Depletion is clearly an actual cost of production and must be taken into consideration if true net income or loss is to be disclosed. Experience has amply demonstrated that particular mines, oil wells, and other wasting resources are not inexhaustible, like the widow's cruse of oil, and investors should not be encouraged to assume to the contrary. Failure to recognize depletion amounts to the omission of the cost of raw materials—a procedure which would be unthinkable in manufacturing and which cannot be condoned in the field of extraction. That the extent and character of the wasting resource may be uncertain is no warrant for an accounting that implies that the amount is unlimited. In a speculative mining venture, indeed, it would be much more reasonable to report no net income until the entire investment was recovered than to treat the cost of the property as a permanent asset.

In some quarters the idea seems to prevail that depletion is an optional charge which may be recognized in good years but should be ignored when production is being carried on at a loss. Such an attitude is entirely

unwarranted. Regardless of the volume of revenue it is the business of the accountant to ascertain and report all costs; only if this is done is it possible to determine the net result—favorable or unfavorable—with even reasonable accuracy.

With the advent of taxes on business income the recognition of depletion has become general as far as tax returns are concerned. In the income statement, however, the practice persists of striking a “net profit” balance before deducting the charge for depletion. Likewise depletion is usually ignored in reporting “earnings” per share. There is no adequate defense for such accounting as a standard procedure. It is true that in wasting enterprises it is not necessary to deduct the expiring cost of property not subject to replacement in ascertaining the amount legally available for distribution to the stockholders. In such enterprises, in other words, “dividends” may be appropriated from liberated capital funds as well as from net profits. But this does not justify a form of reporting that obscures the results of operation; in the extractive lines as well as elsewhere managers and investors are interested in a clear picture of actual earning power. From the standpoint of the stockholders, moreover, it is most desirable that dividends based on net income be sharply distinguished from distributions representing a return of investment, and this is not accomplished by the prevailing mode of presentation. See discussion of the treatment of capital return later in this chapter.

If no basis whatever for estimating depletion is available the best procedure is to avoid sheer guesses and to report “net income before depletion” as a final figure. If an estimate of depletion is sufficiently justified to deserve inclusion in the income statement the amount should be clearly reported as a cost of production.

The following indicates the ideal position for the depletion charge in the periodic income report:

Sales . . . . .		xxx
Operating Charges:		
Production Cost—		
Depletion . . . . .	xxx	
All Other (classified as desired) . . . . .	xxx	xxx
	<u>        </u>	
General Administration and Marketing Cost . . . . .		xxx    xxx
		<u>        </u>
Net Operating Revenue. . . . .		xxx

The use of a contra valuation account to record the credit for depletion is conventional but not particularly desirable. As explained above, depletion has little in common with depreciation; depletion represents the utilization of a stock of basic materials and hence need not be recorded as an accrued offset. On the other hand the fact that depletion is based

on an estimate of recoverable content which is often highly conjectural affords some justification for the use of a special allowance or "reserve" account.

**Calculation of Depletion.** The total cost (or other valuation employed) divided by the estimated number of recoverable units gives the unit depletion charge. The number of units produced during the period multiplied by the unit charge gives the amount of depletion to be assigned to current production. The charge applicable to revenues for the year is found by multiplying the number of units sold by unit cost. The unit selected is usually that regularly used in measuring either final or intermediate product rather than original material. Thus depletion is calculated in terms of tons of coal, pounds of copper, board feet of lumber, barrels of crude oil, etc. Where a number of salable products originate from a single source it is convenient to compute the periodic depletion in terms of the output of the basic material, and then to spread the total charge over the several products in proportion to respective market values or on some other reasonable basis. The cost subject to depletion, as explained earlier, includes all assignable costs of exploration and development.

For example assume that a tract of coal land is purchased at a cost of \$100,000.00, of which \$5,000.00 represents residual land value. Costs of development, excluding depreciable structures, total \$10,000.00. The estimated recoverable content is 400,000 tons of coal, all of one grade. During the first year of regular production the number of tons mined is 50,000, and the tonnage sold and shipped is 45,000. With these conditions the depletion cost per ton is 26.25 cents (the cost assignable to coal, \$105,000.00, divided by the estimated commercial tonnage), the depletion chargeable to production the first year is \$13,125.00, and the amount assignable to sales is \$11,812.50.

A troublesome question arises where production on a commercial scale begins before the work of developing the particular resource involved is completed. One way of dealing with such a situation is to estimate the remaining costs to be incurred and include the amount in the total cost employed in calculating the unit depletion value. This method of calculation has the appearance of charging operations with a portion of costs not yet incurred; nevertheless it gives sound results for all cases in which it is fair to assume that the total cost of development applies uniformly to all recoverable units of material and it is possible to estimate the remaining costs with reasonable accuracy. A variation of this procedure, which avoids introducing estimated future costs directly into the computation of current charges, consists of the division of the estimated recoverable content into blocks to which development charges as incurred

are applied successively until the work on each can be assumed to be complete, coupled with a separate calculation of depletion for each block. This approach is particularly appropriate, for example, when applied to the cost of removing top dirt in open mining. The principal alternative is to recalculate the unit depletion charge each period as long as the development work continues. This plan can be defended where circumstances indicate that the output of each successive year should carry an increasing share of the cost of development, and also where it is necessary to revise the estimate of the amount recoverable—and hence the unit depletion charge—periodically. In a timber tract, for example, the cost of fire prevention and other carrying charges applicable to an acre of standing timber accumulates year by year, although this may not mean that the unit depletion charge—after taking into account the effect of growth—is increasing.

For some types of wasting resources, as noted earlier, it is extremely difficult to make reliable estimates of recoverable content, and the calculation of depletion in such cases is correspondingly troublesome. This situation is no doubt responsible in some measure for the adoption by the government—first for oil and gas wells and later for certain classes of mines—of the revenue-percentage basis of measuring the amount of depletion deductible for income-tax purposes. In the case of oil and gas wells, for example, the taxpayer may deduct (subject to certain restrictions)  $27\frac{1}{2}\%$  of "gross income" as depletion in lieu of an amount computed in terms of physical output and a unit charge determined as explained above.

**Depletion Entries and Computations Illustrated.** As of January 1, 1940, the M Co. acquires a mining property on which one main body of ore is known and partially developed. The cost is \$1,000,000, assignable as follows:

Residual land . . . . .	\$ 50,000
Structures and equipment . . . . .	100,000
Mineral deposit . . . . .	850,000
	<u>\$1,000,000</u>

Costs incurred during 1940, less revenues received from shipments incidental to development work, total \$300,000, of which \$175,000 is applicable to minerals and the balance to structures and equipment. In addition it is estimated that depreciation has accrued during the year, as a part of the cost of developing the mineral deposits, in the amount of \$5,000. On December 31, 1940, the estimated commercial content is 15,000,000 units. Production is started on a commercial basis in 1941 and continues throughout the year. The output at the mine mouth is



1,000,000 units; the amount sold is 900,000 units; finished product on hand at the end of the year totals 25,000 units; and the estimated recoverable content of work in process on December 31 is 75,000 units. Development costs incurred during the year, and not applicable to ore mined, amount to \$60,000. At the end of the year the reserves are estimated at 14,500,000 units. For 1942 the data are as follows:

Mine output . . . . .	1,200,000 units
Amount sold . . . . .	1,150,000 "
Finished product, 12/31/42 . . . . .	50,000 "
Work in process, 12/31/42 . . . . .	100,000 "
Estimated reserves, 12/31/42. . . . .	14,300,000 "
Additional development costs incurred . . . . .	\$50,000

Under these conditions the cost of the mineral deposit when extraction is started on a commercial basis is \$1,030,000 (the original cost of \$850,000 plus additional assignable charges of \$180,000). With an estimated recoverable content of 15,000,000 units the unit depletion cost is approximately 6.867 cents. Accepting this computation as controlling through the year 1941 the amount of depletion chargeable to production for the year is \$68,670. Appropriate entries are as follows:

(1)		
Depletion (or Material Cost of Product) . . . . .	\$68,670	
Ore Account—Allowance for Depletion . . . . .		\$68,670
To record depletion of ore through operations of 1941		

(2)		
Production Cost . . . . .	68,670	
Depletion . . . . .		68,670
To close depletion charge into production cost summary		

Assuming that no continuous accounts are maintained with work in process and finished product the inventories at the end of the period would be established by credits to production cost and charges to inventory accounts, depletion as well as other applicable charges being included in the entries. The amount of depletion to be included in inventories is 10% of the total depletion charge, or \$6,867; the amount applicable to 1941 revenues is \$61,803 (the number of units sold, 900,000, multiplied by the depletion cost per unit).

At the beginning of 1942 the unabsorbed cost of ore stands at \$1,021,330 (the balance at the beginning of 1938, \$1,030,000, plus assignable development costs of \$60,000, less the depletion booked, \$68,670), and the estimated recoverable product is 14,500,000 units. The unit depletion charge for the year, based on the data of the beginning of the year, is therefore 7.044 cents. Applying this figure to the output of 1,200,000 units gives the amount of depletion chargeable to production, \$84,528. The entries are the same as shown above, except for the difference in

amount. The depletion included in inventories and applicable to revenues can be readily computed from the data given.

A possible variation would be to base depletion entries on the cost data and estimate of commercial content revised in the light of year-end figures. For example, the total cost incurred to the end of 1941 which is subject to depletion, including 1941 development charges, is \$1,090,000. The estimated ore reserve at the end of 1941 is 14,500,000 units, after extraction of 1,000,000 units, which means that the total commercial content covered by total cost is 15,500,000 units. On this basis the unit depletion charge is 7.032 cents, and the charge for the year covering extraction of 1,000,000 units is \$70,320. Similarly for 1942 the total cost subject to depletion, including 1942 development charges, may be computed by adding to the net book value of the ore at the beginning of the year, \$1,019,680 (with depletion computed for 1941 as just indicated), the cost of development through the year, \$50,000, which gives a total of \$1,069,680. The estimated ore reserve at the end of 1942, 14,300,000 units, plus the current output of 1,200,000 units, gives again an applicable reserve of 15,500,000 units. The unit depletion charge on the basis of these figures is 6.901 cents and the total charge for the year, on an output of 1,200,000 units, is \$82,812. The form of the entries required would of course not be changed by adoption of year-end data as a basis of computation.

Beginning with 1942 retroactive adjustment of depletion is a possibility. At the end of the second year of exploitation it appears that the total cost subject to depletion which has been incurred is \$1,140,000 (\$1,030,000 plus development costs of \$110,000). The commercial content to which this cost is applicable appears to be 16,500,000 units (14,300,000 plus production to date of 2,200,000 units). The overall depletion cost per unit is therefore 6.909 cents. If this figure were applied to the 1,000,000 units produced in 1941 the total depletion charge for that year would be \$69,090 instead of \$68,670 as shown under the first treatment explained above, an increase of \$420. If correcting entries for 1941 were now made they would take the following form:

Surplus . . . . .	\$378.00	
Work in Process . . . . .	31.50	
Finished Product . . . . .	10.50	
Ore Account—Allowance for Depletion . . . . .		\$420.00

The entries for 1942 might then be recorded on the basis of the revised unit cost of 6.909 cents.

One other method of handling the data may be mentioned. The increase in estimated commercial content in 1941 of 500,000 units (found

by comparing balance of opening estimate in 1941 after deduction of output with year-end estimate) might be attributed to the development cost incurred in 1941 of \$60,000. That is, a special block of 500,000 units might be segregated and given a unit depletion cost of 12 cents (\$60,000/-500,000). Similarly in 1942 the increase in estimated commercial content during that year of 1,000,000 units might be associated with the additional development costs of \$50,000 and given a unit depletion cost of 5 cents. With such an arrangement the original block of 15,000,000 units might continue to be absorbed at the rate of 6.867 cents as first computed. However, such an interpretation would be inexpedient unless the increases in estimated content were in the form of physically separate blocks, opened up by the new development work.

Where value as of March 1, 1913, discovery value, or some other basis is substituted for cost in determining the periodic charge for depletion questions of realized and unrealized appreciation or declination arise as in the case of depreciation based on appraisal data. (See Chapter XV.) In the case of a write-up or a write-down of a wasting resource, however, there is no problem of replacement to be considered and hence no occasion for entries designed to encourage the maintaining of capital on a replacement-cost basis.

**Depletion of Leased Property.** The owner of land endowed with mineral deposits, oil, or the like often leases the property for the purpose of exploiting the natural resource. In this situation depletion must still be calculated and applied to the revenues received—usually in the form of royalties—in determining the net income realized. The unit depletion charge is determined by dividing the total cost (or value, in special cases) *to the owner* which is assignable to the wasting resource by the estimated recoverable content; and the amount of depletion for the particular period is found by multiplying the output reported by the lessee by the unit charge. Where the lessee in effect “buys” all or a specified portion of the exhaustible resource by paying a lump sum down in lieu of a periodic royalty based on extent of production, the most expedient procedure on the owner’s books is to treat the transaction as a sale, profit or loss being determined by comparing the assignable cost of the amount of the resource involved with the sum received. Where the lessee deposits an initial bonus and in addition pays a stipulated royalty on all products removed the amount of such deposit may be treated as a special royalty advance, to be spread over the term of the lease in proportion to collections of ordinary royalties, or as the “sale” of a portion of the resource covered by the agreement, immediately chargeable with an appropriate element of the total estimated depletion.

On the lessee’s books depletion may also appear in the form of an

amortization in terms of output of developmental charges incurred or down payments made to secure the lease. The Bureau of Internal Revenue, in the regulations dealing with depletion deductions for income-tax purposes, stresses the necessity of an "equitable apportionment" of depletion charges between the lessor and lessee. In general an equitable procedure in this connection is one which permits each party to deduct the applicable costs incurred in a systematic manner during the period of exploitation.

**Depletion and Interest.** The output method of calculating depletion may be objected to on the ground that it ignores the factor of interest and hence gives results that are not in harmony with the process by which the value of a wasting resource is primarily determined. An investment in a coal deposit, oil pool, or similar asset may be conceived as the present worth of the series of returns anticipated during the period of exploitation, and the amortization of such investment through revenue charges, it may be urged, should be scheduled accordingly.

It is true that translating the physical process of depletion directly into value expiration, with no account being taken of the time element, tends to produce a distorted picture of net earnings in relation to capital. To illustrate assume that the M Co. buys a tract of standing timber at a cost—for the timber—of \$500,000. The entire stand is cut in five years, precisely the same amount—in recoverable content—being felled and marketed each season. With the conventional method of calculation this means a depletion charge of \$100,000 per year. Total revenues are the same each year, and there is no variation in annual operating charges other than depletion. The amount of annual income before depletion is \$118,700. The following table shows the effect on rate of return of the use of the ordinary method of computing depletion.

<i>Year</i>	<i>Income *</i>	<i>Depletion</i>	<i>Net Income</i>	<i>Property Balance †</i>	<i>Earning Rate, %</i>
1	\$118,700	\$100,000	\$18,700	\$500,000	3.74
2	118,700	100,000	18,700	400,000	4.68
3	118,700	100,000	18,700	300,000	6.23
4	118,700	100,000	18,700	200,000	9.35
5	118,700	100,000	18,700	100,000	18.70

\* Before depletion.

† Net book value of timber at beginning of period.

This brings out sharply the essential weakness of the policy of writing off the capital investment in terms of production. During the five-year period the rate realized on the remaining book value of the timber increases fivefold from 3.74 to 18.70%. Such a result is obviously absurd; the earning power of a wasting asset does not grow as the process of exploitation advances.

On the other hand entirely reasonable results can be obtained by amortizing the cost of the property in accordance with the accepted conception of the process of valuation. This can be readily demonstrated by using the data of the foregoing example. The cost of the timber, \$500,000, is the discounted value of the expected revenues less the costs to be incurred other than depletion. With an annual income before depletion of \$118,700, a rate of approximately 6% is involved. The following shows the effect in round figures of an amortization of investment which assumes that the balance of cost each year is the value of the remaining expected incomes at a 6% rate.

<i>Year</i>	<i>Income *</i>	<i>Depletion</i>	<i>Net Income</i>	<i>Property Balance †</i>	<i>Earning Rate, %</i>
1	\$118,700	\$ 88,700	\$30,000	\$500,000	6
2	118,700	94,022	24,678	411,300	6
3	118,700	99,663	19,037	317,278	6
4	118,700	105,643	13,057	217,615	6
5	118,700	111,982 ‡	6,718	111,972	6

\* Before depletion.

† Net book value of timber at beginning of period.

‡ A discrepancy of \$10 results from use of approximate rate and dropping of cents.

The shortcomings of the production basis of calculating depletion are evidently similar to those of the straight-line and output methods of spreading depreciation. (See Chapter XII.)

The conditions assumed in the foregoing example are of course highly artificial. In practice it is often difficult to forecast either the amount or duration of annual revenues with a high degree of reliability. Production, moreover, is seldom stable, and operating costs are subject to fluctuation. In some mining ventures costs tend to increase with the use of leaner ores and the extension of the workings to greater depth. Nevertheless the objection to the standard method of computing depletion which is illustrated above holds. The method does tend—in actual practice—to produce an unreal showing of net income and rate of return, particularly when applied to a single mine, oil well, or other operating unit.

The conventional method of recognizing depletion—with its satisfying physical basis of measurement—is not likely to give way to the compound-interest approach. At the same time it may be expected that in the valuation of wasting resources emphasis will continue to be placed upon the discounting of expected revenues. And few outside of the classroom will be worried by the flavor of inconsistency.

**Depreciation in Wasting Enterprises.** As a rule the cost of all structures and equipment employed in connection with the exploitation of a wasting asset should be segregated and written off as depreciation rather than depletion. This is especially important in the case of items with

an expected life shorter than the life of the related resource. In fixing depreciation rates it should be borne in mind that the period of extraction represents the maximum term of service for any installation of plant which cannot be readily transferred to a new location. For structures which are expected to last as long as the property will be operated it is not unreasonable to spread depreciation in the same manner as depletion.

**Accounting for Capital Return.** Distributions to the stockholders from capital funds are sometimes referred to as having been "paid out of depletion reserve." Such a statement is seriously misleading. A proper accounting for depletion attempts to assign the cost of the wasting resource to production and revenues in a systematic and reasonable manner; and the recognition of costs neither requires a specific accumulation of funds nor ensures a stream of revenues adequate to cover all costs. The "reserve" for depletion, accordingly, is nothing more nor less than the credit to property account on account of depletion, and is in no way affected by dividend appropriations or payments, whether based on current net profit, accumulated surplus, or capital investment. Indeed the use of a depletion reserve account, as was pointed out, is quite unnecessary.

Where money becomes available in excess of net income, and the management decides to make a capital distribution rather than to incur further development costs, buy additional property, or accumulate a fund, the amount of the appropriation is chargeable to capital account—capital stock in the case of a corporation. If, however, it is desired to avoid a direct charge to capital stock except where there has been either a formal reduction pro rata or a retirement of particular shares, a special offsetting account may be employed to show the amount of the distribution. Assume, for example, that in the first year of operation the net profit of the Mining Co., after all charges, is \$1,000,000, and that the funds made available by revenues and not needed to maintain working capital or for any other internal purpose amount to \$1,500,000 at the end of the year. The management now decides to pay a cash dividend of \$1,500,000. The general entries required to cover the appropriation are as follows:

Income (or Surplus) . . . . .	\$1,000,000	
Capital Returned to Stockholders . . . . .	500,000	
Dividends Payable . . . . .		\$1,500,000

The account showing capital returned is a contra to capital stock and should be shown as such in the balance sheet. In the income statement the "dividend" appropriated from capital may be reported in the form of a supplementary item or footnote.

In general, it is true, the amount of capital distributed as dividends

cannot exceed the depletion and depreciation booked to date without an impairment of working funds. The amount of working capital needed, in other words, does not decline systematically with the exhaustion of the property.

Can a dividend be paid out of capital in the presence of earned surplus? An answer in the negative is justified, although the affirmative position seems to find some support in practice. By definition and traditional interpretation the capital element of the stock equity is maintained intact in the face of losses until the element of accumulated profits is exhausted, and it is both convenient and sound administratively to adopt a similar attitude with respect to dividend appropriations. Granting that it may be legally possible for the board of directors to reduce formal capital by pro-rata distributions without first absorbing surplus, it may still be insisted that such action is likely to be misleading and is not good business policy.

The point just made can be emphasized by an extreme example. A company issues stock for \$1,000,000 and uses the proceeds to acquire a mining property. During the next five years the company recognizes depletion in the amount of \$300,000 and earns a net profit of \$300,000. Disbursements to stockholders during the same period total \$500,000. Desiring to maintain a surplus account under the impression that a showing of surplus is necessary to good standing, the management treats the entire amount of the "dividends" as capital distributions. Accordingly surplus is maintained intact and capital account is charged—by means of a contra—with \$500,000. Under these conditions misunderstanding is almost certain. The treatment followed indicates that 50% of the capital invested has been liquidated and returned; it is much more reasonable to hold that all of the profits have been distributed, together with capital in the amount of only \$200,000, leaving \$800,000 of capital funds still invested.

In a wasting enterprise funds may accumulate for return to stockholders representing liquidation of depreciable assets which will not require replacement as well as liquidation of the mineral deposit or similar resource.

**Treatment of Timber Growth.** The principal example of accretion in wasting resources is found in timber. Over a period of years the recoverable content of a stand of timber may increase considerably as a result of growth, and assuming no change in prices this will mean a proportionate increase in market value. Should the effect of growth be recognized in the accounts and statements? Most accountants argue that it is both unnecessary and unwise to attempt to record accretion, but there is something to be said on the other side. The increase in the amount of re-

coverable lumber owned as a result of growth represents just as real and significant an element of the total stock as any other section—or as the lumber represented in the purchase of an additional tract. Failure to take accretion into account, accordingly, is similar to the omission of a portion of an inventory, and results in a clear understatement of property. This does not mean that it would be advisable to attempt to revise the timber account continuously; only where the resource is held through a considerable period, and the amount of accretion is substantial, can a strong case for a new inventory be made.

In no event should an increase in value based upon natural growth be interpreted as realized income. In other words the amount of any write-up on this account should be credited to a special proprietary account. It is also advisable to use a special timber account to receive the amount of the charge, to avoid obscuring cost figures. When the timber is cut the amount of the accretion recognized should be absorbed as an addition to depletion on the one hand and as a revenue adjustment on the other.

See discussion of accretion as an inventory problem in Chapter VI.

**Accounts and Records.** The cost of wasting resources should be broken down as far as possible in terms of production or operating units such as the particular well, shaft, or logging area. Occasionally subdivision by kinds of material or product is desirable. The general account with a block of timber, for example, may be supported by records showing the estimated amount and cost of each main class of lumber represented in the recoverable content. As has already been indicated, the accumulation of costs in the accounts with wasting assets continues throughout the development period, and there may be some additions after production is begun. Care should be taken to avoid inclusion of cost of depreciable improvements in the accounts covering resources subject to depletion. Periodic credits are necessary (through contra accounts or directly) to record the estimates of depletion. Depletion should be systematically computed on the basis of the underlying classification of property cost which is employed.

The forms required in accounting for wasting assets are highly specialized and vary in their details from field to field.

### QUESTIONS

1. Contrast "wasting" resources with land. With buildings and equipment. What are the principal kinds of wasting assets?
2. Why is the cost of wasting resources "peculiarly subject to overstatement"? How should the portion of cost assignable to residual land be estimated?
3. How should development costs of mines and similar properties be treated during the preliminary period? During the period of regular production? When development fails to disclose resources of commercial grade and extent?



4. "After cutting begins it is quite improper to capitalize costs of fire prevention and related carrying charges." Discuss.
5. What is the "fundamental estimate" in the valuation of wasting resources? Discuss. Outline the succeeding steps in the process of valuation.
6. Define depletion: (1) in physical terms; (2) as a valuation process. Contrast depletion and depreciation.
7. How do you account for the willingness of concerns in extractive lines to omit depletion from operating charges?
8. "In a speculative mining venture it would be well for the stockholder to treat any and all 'dividends' received as a return of his investment until the entire amount is recovered." Discuss.
9. Comment on the use of a contra account to absorb the credits on account of depletion. How is such an account finally disposed of?
10. Illustrate the conventional method of calculating depletion.
11. Discuss the periodic computation of depletion where development costs or carrying charges continue during the early years of production.
12. What is the distinction between depletion "chargeable to production" and depletion "assignable to revenue"?
13. With an illustration explain the handling of depletion by both parties in the case of a wasting asset exploited under lease.
14. With an illustration show the distortion of the relation between earnings and remaining investment which results from the use of the conventional method of calculating depletion. Explain the ideal treatment.
15. "To insist on measuring depletion in terms of physical production while supporting the income approach to the valuation of wasting resources is highly inconsistent." Discuss.
16. "The cost of structures and equipment associated with the exploitation of a natural resource should be written off in terms of the unit depletion charge." Is this sound? Explain.
17. Can dividends be appropriated out of a depletion reserve? With an illustration show how capital distributions in the form of dividends should be accounted for.
18. Argue that a true capital distribution cannot be made in the presence of earned surplus.
19. Should accretion be recognized in the accounts? Discuss.
20. How should the cost of wasting assets be classified in subsidiary records?

## XVIII

### INTANGIBLE ASSETS

**Origin and Nature.** The factors that may give rise to intangible assets include: (1) the favorable attitudes of customers, employees, investors, and other influential groups with which the enterprise is in contact; (2) monopolistic privileges conferred by governmental authority—franchises, trade-marks, patents, etc.; (3) the peculiar knowledge and abilities of owners and managers and special techniques, processes, etc. privately controlled; (4) advantageous business and political circumstances and developments. These groups are more or less interdependent, particularly in that one factor may give rise to another. Thus the “goodwill” of patrons may be founded upon patent rights or other monopolistic conditions enjoyed. It may also be very difficult in a given situation to distinguish the effect of any one influence upon the total of intangible value present.

It is easier to list the sources of intangible assets than to describe the fundamental attributes of this type of property. The term applied—signifying “lack of materiality”—is not particularly helpful. Rights such as are represented by accounts receivable, securities, and prepayments are hardly physical assets (even where evidenced by material writings and documents) but are nevertheless not classed with the intangibles. And typical material assets, in turn, are often found upon analysis to consist essentially of rights rather than physical substance as such. As one writer has pointed out, for example, there is no basic distinction between the right to use land which is conferred by franchise and the somewhat less restricted right which is conferred by granting title.

An important characteristic of the intangibles is their close attachment to the enterprise in its entirety as opposed to specific component elements. The intangible assets, in other words, are less intimately associated with particular structures, commodities, and rights than are the other property values. The intangible value in a particular case is a residuum, an amount by which the value of the business as a whole exceeds the sum of the values of its objective parts computed individually. It follows that intangibles, even more than other assets, depend upon the business as a going concern for their very existence. It also follows that the

**Intangibles are in general less readily transferable and realizable, without disturbing the continuity of the enterprise, than are the other types of property.** This is particularly true of the goodwill arising from established business connections. Patents, copyrights, etc. are subject to independent transfer, and in special cases one or more of such rights owned may not be essential to the welfare of the enterprise.

Growing out of this characteristic is the peculiar difficulty of measuring the amount of intangible value. Since intangibles are a quality or essence of a business as a whole their valuation is tantamount to the valuation of the enterprise itself—the most complex of all problems of appraisal. It is possible to gauge the intangibles, that is, only in terms of the varying fortunes of the business.

The value of the enterprise as a going concern, and hence the amount of intangible value, is primarily a question of earning power. The cost approach to valuation, dominant in the treatment of individual tangible assets, loses significance when the center of attention shifts to the business entity; the enterprise, a conglomerate of facilities, has no value in itself except that which flows from ability to produce income. The presence of earning power, however, does not demonstrate the existence of intangible assets. Only where the level of income is more than sufficient to clothe the tangible resources—soundly reckoned—with a “normal” rate of return is a basis afforded for the assumption of a residual, intangible value. From the standpoint of contributing factors this means that to have intangible value the particular concern must be favored with a superior endowment—as evidenced by earning capacity—with respect to business connections, governmental grants, methods of production, etc.

In view of their intimate association with the going concern, and the extent to which their value depends upon continued successful operation, the intangible assets are evidently in somewhat the same position as the more highly specialized types of plant property.

**Goodwill.** Originally restricted to the worth of an established clientele, the term “goodwill” has come to be applied to that portion of the value of the enterprise which may be attributed to the entire range of advantageous connections—commercial, industrial, financial, and political.

Among the factors which may contribute to commercial goodwill are: (1) collateral circumstances and services—pleasing surroundings, attentive sales force, convenient deliveries, credit accommodation, superior facilities with respect to maintenance, etc.; (2) quality of product in relation to price; (3) customer attitude and habit as induced by use of trade names and labels made prominent through persistent advertising.

Location is also an important factor in determining the volume of business, particularly in retailing, although the effect of this influence can be assigned to goodwill only when not covered by land value. The indirect effect of original monopolistic control of processes and types of product was noted above. In some cases sheer productive efficiency is much less important than other conditions in establishing customer contacts. Commercial goodwill is especially prominent among concerns engaged in manufacturing and distributing specialized consumers' goods. An interesting aspect of the situation is the degree of interdependence between the goodwill of the manufacturer and that of the retailer. Thus the maker of a particular kind of automobile may enjoy customer goodwill based in part on extensive advertising and the character of the product and in part on the efforts of the dealers through whom distribution is effected; and the goodwill of the dealer in turn may in large measure be a reflection of that of the producer.

Industrial goodwill, so-called, is built up through high wages, stability of employment, satisfactory opportunities for advancement, pension systems, hospital service, introduction of safety devices, etc. It also depends in some degree upon public sentiment toward the particular organization and the field it represents—a sentiment which may be greatly influenced by factors other than the policies of the particular enterprise. The benefits to the employer take the form of more effective service and resulting reduced labor costs per unit (a condition not incompatible with a high level of wage rates), together with the savings resulting from decline in labor turnover and avoidance of interruptions in operation owing to disputes with employees. No doubt in many cases good industrial relations—as evidenced by a stable, well-trained, and loyal working force—contribute to the total intangible value attaching to the enterprise.

High financial standing is reflected in the attitudes of investors, financial houses, trade creditors and others from whom the enterprise secures capital in the form of either money or goods. Such standing facilitates the raising of capital for both current and long-term needs and thus contributes something to the general welfare of the business. In some cases financial position may have a direct effect on operating costs through making it possible to buy on especially favorable terms.

It may be somewhat unreasonable to refer to the favorable setting of the particular concern with respect to public opinion and governmental or political conditions as a form of "goodwill." There can be little doubt, however, that often such factors are in part responsible for the attainment of a high level of earnings and the resulting intangible value.

The policies and conditions from which goodwill emerges are inter-

dependent to a degree which makes it impracticable in general to segregate the various phases in terms of dollars and cents. In the last analysis, moreover, the effect of all contributing factors is found to be embodied, in large measure, in commercial goodwill. Good relations with employees have a bearing on the quality and price of the product and thus exert an indirect influence on the attitudes of customers. Advantageous financial relationships, in turn, are more likely to reflect the presence of intangible value resulting from the character of management and demonstrated earning power than to constitute a major factor in its formation. Nevertheless a recognition of the important contributing factors is desirable in estimating the value of goodwill in a given case and in dealing with such value in the accounts where this becomes necessary.

Attention should again be called to the fact that goodwill is present as an element in the value of the enterprise only where the established connections with customers, employees, and others, together with the more general conditions surrounding the business, are of such a character as to result in the attainment of an earning power above the average or normal level.

**Patents, Copyrights, Trade-Marks.** A patent consists of an official grant by the government designed to secure for the patentee the exclusive right to some invention or discovery. In the United States the term is seventeen years. In theory the invention must be both new and useful, but as a matter of practice trivial variations of existing devices are often patented, and many patents have been granted covering the most absurd contrivances. The patentee must be the inventor, but the right is legally assignable for all or part of its life. The right of use may also be conferred upon another party by lease or other form of agreement.

Ownership of a patent may mean lower costs than those incurred by competitors, with resulting enhanced net earnings; in other cases the monopoly afforded by a patent is significant through the higher prices which may be charged for the product. Occasionally a patent is of such importance that it comes to have a value that overshadows the tangible assets of the owner. On the other hand the great majority of patents granted do not realize for the patentees the amount of the patent fee and legal expense, to say nothing of the costs of experimentation. This is particularly true of patents which cover minor adjustments or improvements and are unimportant because of the numerous equally advantageous devices available. A large number of related patents under one control may have a considerable value when taken together although the individual patent by itself has little or no significance.

Methods and formulas which have not been patented may become valuable assets. Trade secrets, like patents, are recognized legal prop-

erty and are subject to transfer. The advantage of the secret process or formula lies in the fact that its exclusive use is not limited to a specified term of years, and the risk of infringement created by public declaration is avoided. Without patenting, on the other hand, prevention of widespread use is impossible if knowledge of the process is obtained by others, and safeguarding business secrets under present-day conditions is not an easy matter.

Copyrights represent the exclusive right, conferred by specific governmental grant, to reproduce, publish, and sell a literary or artistic product. The term is twenty-eight years, with the possibility of renewal for a like period. As in the case of patents the monopoly afforded by copyright may have a substantial value. Copyrights, like patents, may be readily assigned or licensed.

Trade-marks, trade names, labels, and brands are important as means of building and holding commercial goodwill, and may reasonably be viewed as representing distinct intangible assets only where they are the focus of the customer's attachment to the enterprise. The significance of such factors has increased with the development of large-scale production for large market areas, and the resulting impersonal relations between producer and consumer; in many fields name and label have come to be the chief reliance of the customer in the selection of goods. Unfortunately the buyer often fails to exercise much intelligence in giving his allegiance to particular brands. Advertising plays an important role in this connection, and the volume of branded output is often maintained or even increased although the article in question is by no means a good buy at the going price.

Trade names and trade-marks are the property of the party who has established his right by priority of established use. Registration with the government is a special safeguard but is not necessary to establish ownership and prevent unauthorized employment. Firm names are not subject to registration as trade-marks but are also entitled to reasonable common-law protection.

**Recognition of Intangibles.** Accountants usually take the position that goodwill and other intangibles should be recorded in the accounts only to the extent of their actual cost, on a cash or equivalent basis.

On the whole this position seems to be justified—even if the criterion of conservatism often urged in its support is not stressed. A distinction should be drawn between the specific assets of the enterprise and the value of the going concern itself. The asset accounts are built up in terms of the particular elements in which the capital of the business is embodied and should not be adjusted—in either direction—for the purpose of bringing the total into harmony with the estimated value of the

enterprise as an income-producing entity. It would be quite out of line with the purposes of accounting, in other words, to increase or decrease recorded assets—generally measured by costs incurred—by the amount of a fluctuating factor based upon the estimated value of the earning power of the capital employed in the particular setting. The managers, investors, and others involved expect the accountant to maintain a record of the commitments on which it is hoped a return will be realized; the adjustment of asset balances to match the level of anticipated income would result in an obscuring of the essential relationships in which all parties are interested.

For those companies whose securities have an established market the current value of the enterprise is reflected after a fashion in the quoted prices of the shares. Consideration of the course of stock prices in recent years should make it clear that it would be ridiculous to adopt a scheme of corporate accounting which attempted to follow the changing estimates of enterprise values. It is not at all uncommon for the stock of a particular company to fall twenty-five to fifty per cent or to advance fifty to one hundred per cent in the space of a few weeks. In a severe slump instances arise in which the apparent market value of the enterprise is less than the amount that could be recovered in immediate liquidation (which means of course that according to the consensus of opinion on the market the enterprise is facing a period of continuing losses). Whatever may be the reasonableness or unreasonableness of such fluctuations they furnish no data that may serve to enhance the usefulness of accounts and statements.

The willingness of the accountant to accept for record tangible assets secured through bequest, gift, or discovery, without cost to the owner, is readily explained by reference to the needs of managers and owners in connection with property administration, determination of operating costs, etc. Revaluation of plant and other assets in terms of changing market prices can be similarly supported, although the case for continuous revision is none too strong, as pointed out in Chapter XIV. Implicit intangible value, on the other hand, has no bearing on day-to-day operating or financial problems and policies, and from this standpoint, therefore, no justification can be found for the recognition of this element—a general quality or essence of the enterprise—in the asset accounts.

Conservatism in dealing with intangibles is sometimes carried to the point of charging the cost of goodwill and related factors directly to surplus or capital. In principle this is just as improper as the recognition of nominal and questionable values as good assets. The amount invested in intangibles is a part of the actual capital of the enterprise making the commitment and has a bearing upon subsequent income accounting, in-

cluding the question of rate of return. The actual cost of intangible property, therefore, should be recognized at the outset as an asset, and the later treatment of the item—as in the case of other assets—should depend upon the conditions obtaining.

Relaxation of the general rule that intangibles may be recognized in the accounts only to the extent of cost actually incurred is permissible in the case of partnership or corporate reorganization if there is satisfactory evidence of the presence of intangible value and if the modification of ownership or capital structure is sufficiently substantial to warrant the adoption of a new point of view. It should also be noted here that the reconciling element required in the preparation of the consolidated balance sheet under some conditions represents intangible value.

The foregoing discussion applies particularly to general intangible value, or goodwill. In the case of intangibles based upon distinct and readily transferable rights the objection to the recognition of value not supported by cost is less serious. A patent, for example, may come to have an unquestioned and independent market value greatly in excess of cost, and failure to indicate such a situation in the statement of financial position, at least to the extent of a footnote, is hardly excusable.

**Intangible Values and Comparative Performance.** A special point bearing upon the question of the exclusion of implicit intangibles from the accounts deserves emphasis. In admitting the propriety of recording purchased goodwill while refusing recognition to equally potent goodwill which has been developed without cost the accountant is in effect deciding to deal differently with very similar enterprises. The R Co., for example, is organized to take over the M Co., a concern with tangible assets of \$1,000,000 and with no investment in intangibles. As a consequence of a high level of earnings the market value of the M Co. as a going concern is set at \$1,300,000, and this is the price paid by the new company. In this situation the application of the rule stated above excludes intangibles from the accounts of the M Co. but permits recognition in the amount of \$300,000 with the change in ownership. Can this inconsistency be justified?

An affirmative answer is called for. The accounts are kept primarily from the standpoint of the owners and managers of the particular business entity. In the case of the M Co. the booking of the implicit intangibles would have obscured an outstanding fact—the high level of earnings which has been attained. In the case of the R Co. the exclusion of the actual investment in goodwill from recorded assets would make it appear that the new owner, after suffering an immediate loss of invested capital, was likewise realizing an unusual rate of return on the tangible resources—which is not the actual condition. From the point of view



of the R Co. the layer of earnings realized in excess of a normal return on tangibles represents a return on and liquidation of the cost of such earnings (assuming realization in accordance with estimates at date of purchase), and hence deserves complete recognition in the accounts. In view of the essential function of accounting, then, there is no real inconsistency in the treatment recommended. The same considerations which support exclusion in the case of the M Co. justify inclusion in the case of the R Co.

Comparisons between enterprises would not be facilitated by a general recognition of intangibles. Instead the effect would be to eliminate (to the extent that anticipated averages were realized) all earning rates above the normal or representative rate in the particular industry, with a resulting picture of a dead level of earning power above which no enterprise could rise—a condition quite out of line with the facts. Moreover, if the market value of the business as a going concern is to become the final test of total asset value for unusually successful businesses it should also be applied to enterprises with low earnings, which would mean a scaling down of their tangible assets with a consequent tendency to lift reported rates of return realized to the normal level. This sort of tinkering—the smothering of actual differences, significant to those most interested—does not provide a foundation for sound interpretation.

For the individual enterprise, similarly, recognition of varying intangible value to reflect the changing estimates of superior earning power, coupled with downward adjustment of total tangible assets to reflect the prospect of subnormal income or losses, would not furnish useful bases for the computation of periodic earning power. The result instead would be a tendency to peg the apparent rate of return at the selected normal or average rate, year in and year out, regardless of actual business fluctuations.

**Costs of Developing Goodwill.** Although having no direct cost the goodwill of an enterprise may be in part the result of various types of expenditures which have been absorbed in operating charges. Advertising and publicity cost is perhaps the most important example. It is a commonplace that general advertising campaigns are often undertaken to improve the long-run position of the business, and it is a reasonable assumption that the revenues resulting from such efforts are not confined to the periods in which the costs are incurred. Similarly the study of methods of distribution and the work of establishing sales agencies may have a bearing upon the volume of business over a period of years. Technical research aimed at lowering operating charges and improving quality of product is another factor which may be important in the process of establishing commercial goodwill. On the side of industrial

goodwill, the expenditures necessary to create a personnel department and to bring together a satisfactory working force, together with the cost of all facilities developed to provide for the physical care, technical training, general education, and entertainment of employees, may be viewed as indirect costs of intangible value, if and when such value appears.

But it does not follow that the costs of making customer connections, developing staff, establishing records, improving methods and products, etc. should be capitalized in full or in part as incurred. To trace the effects of such costs in terms of either specific or periodic revenues is in most cases inexpedient if not impossible. Expenditures of this character, like other outlays, are made in good faith, with the hope and expectation that they will be justified by subsequent events, but rarely can they be attached—with confidence—to particular physical objects or processes, and their relation to the flow of operating activity is not readily determined. Many such costs, moreover, are in part regularly recurring, and the adoption of a general policy of capitalization would require the development of a concurrent scheme of amortization—not an easy task.

In principle there is perhaps as much justification for deferring absorption of the cost of a program of advertising which by its very nature cannot be expected to have much if any effect on current business as there is for treating as an asset the cost of erecting a building. At the same time the association of the advertising cost with production and revenues in a reasonable manner is clearly more difficult than the corresponding problem in the case of the building. With respect to plant assets standards are not utterly lacking by which the result of the expenditure may be judged and a plan of absorbing the charge worked out. With respect to advertising, marketing research, etc. policies vary widely from business to business, even within a single field, and there are few guides to conclusions as to the "service lives" of such expenditures. On the whole it seems advisable to treat expenditures which may contribute indirectly to intangible value as charges to operation when incurred (or as short-term deferred charges which are absorbed in terms of a program of budgetary apportionment) except in the rare situations in which the advisability of long-term deferment is clearly indicated.

Is it wise to attempt to resurrect such costs as an intangible asset when a superior earning power has been established and it is accordingly evident that the value of the enterprise as a going concern exceeds the total of tangible assets? Presumably not. The assumption that past expenditures have contributed to the formation of intangible value in such a situation is not in general unreasonable, but a satisfactory basis

on which to estimate the amount to be capitalized is lacking. The attainment of a high level of earnings, too, may actually be due in large measure to factors and conditions having no relation to charges absorbed in earlier years.

**Costs of Developing Patents, Copyrights, Etc.** In the case of patents and related factors substantial costs are often incurred in connection with development and legal acquisition and protection, and where such costs are definitely assignable it is good practice to record them under appropriate titles, as intangible assets. The allocation of many of the charges, however, is a difficult matter. Nowadays numerous inventions and technical improvements are the result of organized and persistent research sponsored by business enterprise rather than of individual inspiration and effort. In the large corporation a research department is often maintained as a regular adjunct of the business, with annual expenditures amounting to many thousands of dollars. In this situation how are the costs of the important patentable devices and processes which are from time to time developed to be determined? It would hardly be sound to treat all costs of research, year after year, as the cost of intangible property, particularly in view of the recurring nature of many charges. Much of the research work of the typical enterprise does not result in peculiarly advantageous methods. Other concerns are similarly engaged and a major part of the annual cost is presumably required to keep the enterprise abreast of the normal tide of business development. However, even if it be assumed that current absorption of research cost is generally expedient it is always advisable to maintain records of research and experimental charges in such form as to facilitate segregation of the costs applicable to particular projects; and it is certainly not unreasonable to treat the assignable charges as a cost of patents or similar intangible where a clearly valuable result emerges.

The legal costs and fees connected with securing a particular patent may be readily ascertained as a rule and are evidently an element in patent cost. Expenditures incurred in protecting patent rights, however, are less easily dealt with. Where such charges are essential to making the patent effective, and do not recur once the patentee's position is solidly established, they may reasonably be interpreted as a part of the cost of the asset. Costs of special patent litigation are sometimes set up as a suspense item pending the outcome of the controversy. Where a suit is lost it is evident that the costs of the action should be absorbed as expenses or losses. Where a suit is won the costs can be capitalized only if it is clear that an advantage has been realized which enhances the significance, with respect to future earnings, of the rights in question.

Incidental costs of protecting patents are—like routine recurring costs of fire protection—an ordinary operating charge.

Development costs definitely assignable to secret processes and formulas, like similar costs applicable to patents, may properly be treated as intangible assets. In the case of copyrights the outlays for services and materials in preparing the matter to be copyrighted—often a substantial amount—represents the major element of cost. The assignable costs involved in selecting and registering trade names are usually small. In some situations the cost of the campaign to establish a name or brand commercially may reasonably be viewed as an investment in a specific intangible asset rather than as a contribution to goodwill.

**Cost of Purchased Intangibles.** The purchase of goodwill, as might be expected, is usually associated with the sale of an entire business, or major department or division of a business. Patents and related assets are likewise often acquired under similar circumstances. In the next chapter the valuation of intangibles as an element in the total worth of the going concern is considered in some detail. At this point the discussion is confined to questions involving the interpretation of the nominal price of the enterprise and the segregating and classifying of the element of intangible value.

In the transfer of a business to new owners the entire consideration (or a substantial portion) may be in the form of securities. In this situation the difference between the acknowledged value of the tangible property received and the par or nominal amount of the securities issued in exchange has sometimes been reported as "goodwill." It hardly needs saying that the actual cost of intangibles cannot be determined in this fashion. The first step in all such transactions should be to ascertain the amount of the total purchase price on a cash basis, and for this purpose the fair market value of the securities issued is generally the proper criterion. With the nominal price adjusted to cash, the cost of intangibles may be assumed to be the excess—if any—of such price over the value of the tangible assets. Unfortunately the making of a reliable estimate of the value of the securities involved is often well-nigh impossible. Embarrassed by this fact, and by a natural reluctance to attack figures which have been definitely agreed to by both parties and expressed in a written contract, the accountant has fallen into the habit of accepting the nominal terms for record, notwithstanding his doubts as to their propriety. In view of his responsibility under present-day conditions the accountant is justified in taking a more positive stand as to the values presented in statements, and where dependable figures are not available he should indicate such condition clearly.

Aside from the question of the cash value of the consideration, the nominal terms are sometimes discredited by the lack of a genuine transfer of ownership. Particularly in partnership adjustments, and in corporate reorganizations and consolidations, the price agreed upon may not be the result of a process of bargaining between entirely independent parties and hence should not be taken too seriously.

In some cases the price paid for the business is not apportioned between tangible and intangible property in the agreement, or is not reasonably divided, although there is little question as to the validity of the total. In such a situation the tangible assets are sometimes recorded at book value to the predecessor company and the balance of the amount paid is considered to be represented by intangibles. This treatment is not at all likely to result in a proper assignment. The fair market value of tangibles—and hence the portion of the price applicable thereto—seldom approximates book value to the vendor, particularly in the case of land and other fixed assets. In general the most reasonable procedure is to divide the total cost between the two classes of property in proportion to the respective values as determined by careful appraisal. It is true that the total of the appraisal figures often does not correspond to the price actually paid, but where the estimates are compiled by competent parties they should furnish a satisfactory basis for apportionment. If, for example, the tangibles are appraised at \$9,000,000 and the intangibles at \$1,000,000, and the actual amount paid is \$9,500,000, the cost of the intangibles may be set at 10%, or \$950,000.

The fact that the Treasury Department is disinclined to permit goodwill to be amortized for income-tax purposes tends to discourage the buyer of mixed property from making a serious attempt to isolate the amount of intangible value involved.

After segregating the cost of the intangible element there remains the problem—in some cases—of breaking down this cost into its component parts. Assume, for example, that the cost of intangibles is \$950,000 and that it is desired to divide this cost between the value of goodwill and the amount paid for a number of patents taken over. Usually there is no satisfactory basis available, particularly in view of the interdependence of patent value and goodwill. In general it is necessary to make a highly arbitrary assignment or none. Where a study of conditions indicates that the patents are of decided importance it may be expedient to treat the entire amount as the cost of patents.

Occasionally such specific intangibles as patent rights are transferred apart from the sale of a business. A corporation, for example, may purchase a particular patent from the inventor or other individual holder

or from another company. In this case there is usually no question as to the amount of the cost incurred and no problem of classification.

**Amortization of Goodwill.** The view that goodwill is not subject to regular amortization is often advanced. Goodwill, it is argued, has an indefinite life, and hence no basis for a systematic write-off is available. It is also argued that if the earning power upon which goodwill depends is maintained the continued existence of the intangible value is demonstrated, and that if and when the level of income becomes inadequate to support goodwill the intangible value should be charged off. As will be explained in the next chapter, this position is not fully consistent with the recognized method of finding the value of goodwill by discounting estimated differential earnings. Assuming the cost of goodwill represents an investment in a terminable series of special earnings it seems clearly advisable to amortize such cost through the period in which the earnings are expected.

Some support for the treatment of goodwill as a permanent asset is found where the maintenance of the level of income requires special expenditures for advertising, experimentation, etc. which are charged directly to operations, in amounts at least equal to the periodic amortization charges implicit in the original valuation. However, the fact that it is not considered feasible to accumulate as a deferred charge costs presumably assignable to future revenues is hardly adequate justification for failure to write off a cost that is presumably expiring. Each problem should be dealt with on the merits, with no resort to cancellation or offsetting.

Unduly conservative, on the other hand, is the attitude of the accountant who holds that the cost of goodwill should invariably be charged off immediately or, if this "is not expedient," as soon as revenues are present in sufficient amount to make the write-off possible without "going into the red." It is true that reported intangibles have often been nothing more than offsets to nominal security values, and it is accordingly easy to understand why they are in bad odor in financial circles. This condition, however, is not a valid excuse for general condemnation or arbitrary disposition. If the goodwill is actually purchased in a legitimate transaction, and the reported amount is based on a payment in cash or equivalent, there is nothing peculiarly questionable about the item and no reason for its exclusion from the respectable family of assets. Postponing amortization until revenues appear, moreover, is not always a conservative policy; the investment in goodwill represents a reasonable and proper commitment of funds, but if the expected earnings fail to materialize the amount so invested is thereby demonstrated to be a loss.

The reluctance of the Treasury Department to permit taxpayers to amortize the cost of goodwill as an allowable deduction for income-tax purposes is not surprising in view of the lack of objective bases for measuring the expiration. In the valuation of goodwill in tax cases, on the other hand, the high rates of capitalization accepted by the government furnish evidence of a recognition of the fact that goodwill is not to be viewed as a permanent asset.

The compound-interest method of amortizing the cost of goodwill harmonizes with the process of valuation discussed in the following chapter. Straight-line write-off, however, is not seriously objectionable, particularly in view of the fact that the actual price at which goodwill is transferred is not likely to correspond exactly to any of the estimates used as a basis for negotiations.

Either the direct or indirect method of booking amortization is proper, but the usual procedure is to credit the amount accrued directly to the asset account. The periodic charge should be treated as a revenue deduction except in situations in which interpretation as a loss is clearly called for. As a rule the assignment of amortization to particular levels or sections of revenues is not expedient, although it may not be unreasonable to include this factor along with other overheads in departmental costs of operation and in inventories based on a broad conception of cost of production.

**Amortization of Patents and Similar Assets.** From the standpoint of the original owner the legal life affords a convenient basis for the scheduling of the amortization of the costs of patents. Complete write-off is justified, however, as soon as absence of earning power becomes apparent, and the process of extinguishment should be accelerated where supersession or other conditions indicate collapse of value prior to the date of legal expiration. Where a patent or related asset is acquired by purchase and the price paid is based on an assumed life of less than the balance of the legal term the amortization schedule established should be in harmony with the estimated life. The method of write-off required for income-tax purposes and generally favored in practice is straight-line amortization over legal life. The fact that the initial advantage afforded by a patent right may become perpetuated in some measure in the form of goodwill does not justify failure to amortize. Goodwill usually develops as a result of numerous factors and conditions, and it is therefore not possible to isolate the influence of the early monopoly enjoyed as a result of the governmental grant. A sound treatment requires complete absorption of the cost of the patent by the expiration date at the latest.

Owing to the difficulty of assigning costs to individual patents, and of tracing the effect of the particular grant upon earnings, it is often

necessary to compute amortization in terms of the total cost of a group rather than in detail. This is especially true where a number of patents are purchased for a lump sum based on combined earning power. In such situations it is advisable to treat the group as a unit in calculating periodic amortization. Assume, for example, that ten related patents of varying legal lives are purchased at a cost of \$200,000, and that the total unexpired legal life of the entire group is 1,500 months. At the end of the first year the remaining aggregate life in months—no patent having yet fully expired—is 1,380. With these conditions it is not unreasonable to apply the percentage of aggregate expiration during the year,  $120/1,500$ , to the total cost in calculating the amortization. The result is a charge for the first year of \$16,000. The accrual for subsequent periods is similarly calculated. The Board of Tax Appeals has approved of this method of calculation in particular cases.

For copyrights the legal life is often not a satisfactory basis for the amortization schedule, even at the outset. Sales of many publications bulk heavily in the season of issue and are negligible after the first two or three years. In such circumstances the cost of the copyright should be largely absorbed by charges to the early revenues.

Particularly for the purpose of facilitating an orderly amortization of cost the original owner of patents and similar rights should maintain a detailed record showing description, number, date of grant, and all assignable costs for each grant.

The problem of amortizing the cost of secret processes is similar to that of writing off goodwill.

**Franchises.** The public utility is often granted a franchise by the community served—usually for a definite term of years—which sets up the conditions under which operation must be conducted. Such franchises establish restrictions of various kinds, but they also confer certain privileges and rights ranging from very minor advantages to complete monopoly of service. The cost of a franchise can reasonably be treated as an asset. To the original grantee the cost may include amounts paid to the municipality or other governmental unit, payments to private property owners (exclusive of costs more properly assignable to right-of-way), legal fees, etc. In the transfer of an established utility from one group of owners to another a payment to cover the franchise and cost of development may be implicit in the purchase price. Periodic payments to the governmental unit made in accordance with franchise requirements—based, for example, upon a percentage of gross revenues—are current charges rather than costs of property.

The cost of a terminable franchise should be systematically amortized during the term of the grant, regardless of the possibility of renewal.



However, the amount expended on a franchise—like any other commitment of funds—may prove to be a poor investment long before the date of expiration, and in this event a special write-off is justified. In the case of a perpetual franchise the cost at the outset may be viewed as a permanent asset.

**Organization Costs.** The general costs of launching a business enterprise—promoters' compensation, incorporation charges and fees, commissions, printing costs, etc.—are allied to the intangible assets in that they attach to the business as a whole rather than to particular units of tangible property, and accordingly have no independent realizability.

Like ordinary intangibles, organization costs have been traditionally viewed with suspicion by accountants. It is admitted that organization "expenses" are not immediate charges to revenue (of which there may be none during the period in which the undertaking is launched); it is likewise agreed that necessary costs of this character can hardly be interpreted as outright losses. Having made these concessions the accountant then recommends that these preliminary expenditures be set up as "deferred charges," to be absorbed against revenues within a period of two or three years. This position represents an effort to beg the question of the character of organization costs and as such is not a credit to the profession. Organization charges, like other commitments of funds, should be dealt with on the merits. It is high time that accountants became more aware of the fact that the "assets" of the going concern consist in large measure of deferred charges—costs incurred which under the circumstances are reasonably applicable to the future. Accountants should also realize, in these days of marked complexity of business organization and operation, that direct association with and attachment to a definite physical object is not the decisive test of the validity of a cost factor, either as a revenue charge or as an asset. The fact that general administrative services, for example, have no obvious physical connection with particular factory operations, units of product, or sales does not justify the conclusion that the cost of such services is a dubious item, a questionable charge. Similarly the difficulty of tracing a definite relation between the services and conditions represented by organization costs and specific material objects such as a building or unit of equipment does not warrant an unfavorable opinion as to the contribution of such factors to the total asset value embodied in the enterprise. Assuming that the organization charges represent legitimate expenditures, on a cash or equivalent basis, there is no good reason for questioning their status as a part of the cost of the business enterprise and hence as an element in the reckoning of initial assets.

It is true that the costs of starting the enterprise and raising capital in practice have often been padded with security discounts, and that unreasonably large payments have sometimes been made to the interested promoters and financiers, but this condition does not furnish a basis for arbitrary treatment of all legitimate costs of this class. The apparent costs of construction have been known to include unreasonable contractor's profits and other questionable items, but no one thinks of suggesting as a result that all building costs be reported as no better than a quasi-asset, subject to extinguishment as rapidly as revenues become available. It is also true that the funds absorbed in organization and financing activities, like intangibles in general, are placed in somewhat greater jeopardy from the standpoint of prospect of recovery than are the funds invested in tangible assets, but at the most this is a matter of degree rather than of fundamental difference. Organization costs can be recovered only through years of successful operation or through sale of the enterprise as a going concern, but substantially the same can be said of the sums invested in railway track, mining shafts, and other highly specialized physical structures.

The position is sometimes taken that no additions to organization costs should be made after operations have begun and revenues are available to absorb such charges. This may be viewed as conservative practice but has little to be said for it otherwise. Costs of refunding and of raising additional capital should be excluded from current revenue charges, and costs incurred in connection with changes in the corporate structure designed to facilitate expansion of the enterprise are also subject to capitalization. This does not mean that it is expedient to include in assets every item of expenditure associated directly or indirectly with adjustments of the form of organization; as in the case of tangible property there is little excuse for the capitalization of small incidental charges. In dealing with reorganization costs, moreover, care must be taken to avoid retaining original charges which are superseded by the new expenditures.

Organization costs should be fully subdivided in the ledger under such headings as incorporation fees, law, printing, traveling, promotion, commissions, etc. In the balance sheet such costs should be clearly displayed as a distinct item, supported by a separate schedule where this seems at all desirable. The amount reported should be on the basis of cash expenditures or their equivalent. Where these rules are followed the presentation of such charges under assets is not only not objectionable but definitely informative. Such treatment completes the account of the commitments made with the funds supplied by the investors.

**Amortization of Organization Costs.** Accepting the view that organization costs should be capitalized as a legitimate addition to assets the question arises as to the ultimate disposition of such charges. Are these costs subject to amortization, and if so on what basis? In general the most reasonable treatment assumes a close relation between the progress of the enterprise and the tangible and intangible components. The capital of the investors is expended in two directions: (1) to launch the enterprise; (2) to endow it with the necessary physical facilities. Both commitments depend upon the success of the venture for their continued validity. If the degree of success achieved is sufficient to justify the expenditures made the retention in the balance sheet of the costs of initiating the project seems to be warranted. In other words, if the concern attains and maintains the expected momentum the costs incurred in bringing the business into being remain unimpaired as an asset. This view is at least implied in certain decisions of the Board of Tax Appeals dealing with the question. It follows that if the enterprise slides downhill, and its tangible resources are dissipated, the general cost of bringing the business into being likewise evaporates. This interpretation leads to the following general rule or formula: organization costs should be retained as a permanent asset as long as the business maintains a substantially unimpaired status as a going concern, as reflected in earning power and tangible resources, and should be amortized with a sustained contraction of income and tangible assets resulting either from lack of operating success or deliberate liquidation. Needless to say it would not be expedient to attempt to apply such a formula in terms of minor fluctuations in activity and earning power.

Systematic amortization of organization costs from the outset is required where a business is organized for a definite term of years, or is operating under a limited franchise, or is exploiting a wasting resource. Suppose, for example, that a company is launched for the specific purpose of cutting a tract of timber which will be exhausted in five years at the expected rate of cutting. Costs of organizing and raising capital amount to \$50,000 and the cost of the tract itself is \$1,000,000. Ignoring the complications of accretion, stumpage, etc., it seems clear that under these conditions the organization charges should be amortized in terms of the depletion schedule over the period of operation. It is true, of course, that the organization may have some value even after the original purpose has been accomplished due to the fact that the owners might decide to undertake a new venture rather than to liquidate, but this possibility would not warrant failure to amortize the cost in accordance with the predictable life of the original undertaking.

In some cases particular elements of organization cost are subject to regular amortization—although the balance may be viewed as a permanent asset. Commissions and other costs associated with the issue of bonds or other terminable securities, for example, should be absorbed over the life of such securities.

**Interest Charges during Construction.** Interest paid or accrued on indebtedness during the period of organization and construction, according to the prevailing opinion, is an element in the total cost of property. This interpretation is based upon the proprietary point of view. To the owners or stockholders the amount of interest accruing on borrowed money in the period prior to operation is not a loss or a diminution of capital but the cost of a special service furnished by the bondholders or other creditors. The creditor-investor, that is, has agreed to supply capital at a restricted rate of return which he is entitled to draw from the outset, and the stockholder considers the advantage of this arrangement worth the amount of funds which must be advanced to meet the interest obligation. From the managerial, all-capital point of view, on the other hand, the interest required during the launching period—like preferred dividends paid out of capital—represents a return to one group of investors of money deposited by another group, leaving a net amount to be employed in launching the enterprise and acquiring the necessary facilities. According to this approach, interest during organization and construction expresses an adjustment of the residual equity rather than an element in the cost of the enterprise and its tangible resources.

The interest accrued during the preoperating interval might be assigned to particular tangible assets acquired in terms of the respective amounts of funds employed. However, if this disposition were accepted a portion of the charges would be applicable to the cash and other liquid resources carried during the preliminary period, and it is hardly possible to accept the theory that interest can be included in the accounts representing such resources. To add a "carrying charge" to cash, for example, would result in a downright misstatement. This suggests the questionable character of interest on money as an explicit addition to the cost of any particular asset. The classifications of the Interstate Commerce Commission, to refer to utility practice, include a special account to receive all charges for interest during construction.

The allocation of interest during construction to accounts representing depreciable assets would result in amortization of such cost as an element in the depreciation accrual. If, however, interest is interpreted as a type of general financing cost, similar to organization charges, the item becomes a permanent asset, not subject to elimination so long as the

property as a whole and the scope of operations are maintained unimpaired. On the whole the latter treatment seems to be the more defensible.

**Return on Stock Equity Prior to Operation.** In the utility field the established doctrine holds that the enterprise is entitled to earn on the amount of funds actually invested plus a reasonable rate of return on such funds during the period of construction, including stock capital as well as borrowed money. This amounts to nominal acceptance of the proposition that during a normal period of organization and construction the utility is a quasi-guaranteed business. But it is by no means obvious that this method of attempting to preserve equity between the business and its patrons is particularly helpful. Actually the utility has no assurance that a fair return either on the investment or on the increment accrued during construction will be realized; recognition by the regulating authorities that the concern is "entitled" to earn is not the equivalent of a guaranty. Under these conditions it might be better to attempt to achieve fairness by granting the utility the opportunity to earn during operation a somewhat more liberal rate of return on actual investment, with no compensation for the preoperating period. Certain it is that there has been undue emphasis on property valuation in rate regulation, and one of the most debatable areas is that of the computation of interest and other "overheads" during construction. In valuations presented in rate cases the amount of estimated interest included by the several experts often shows the most marked variation owing to differences of opinion with respect to the length of the construction period, the methods of construction, the rate of interest, etc.

Aside from the considerations peculiar to regulated business there seems to be no sound basis for the position that an estimated return on the proprietary investment during the period of organization and construction should be accrued and booked as a part of the explicit cost of property. From the standpoint of the stockholders in the ordinary venture the preoperating period is actually a lean period; there is no accrual of income in the form of an enhanced property account or otherwise. A commitment of funds in a business undertaking is not at all on the same footing with an investment in an interest-bearing security. It is recognized that a period of preparation is necessary before revenues become available, and it is hoped that operations will eventually be sufficiently successful to justify the interval of waiting. It is true that an organized business with a completed plant ready to operate *may* have a fair market value in excess of the total amount of funds invested, and the factor of interest during construction may reasonably be assumed to account in part for such excess. But booking the estimated selling value

of the enterprise and its property would be a much more extreme form of recognizing unrealized profit than booking an inventory of salable merchandise at current market price. In the latter case the increment is but a step removed from actual realization; in the former—unless the enterprise is up for sale—realization depends on the highly unpredictable outcome of operation through the life of the business.

That charging property account with estimated return on proprietary funds employed during the preoperating period actually involves the booking of unrealized gain should be made plain. Assume, for example, that the M Co. organizes with a capital of \$100,000, all of which is immediately paid in. The Company now proceeds to build a plant and acquire other assets with these funds. At the end of one year the work is completed and the enterprise begins operations. At this point it is decided to accrue 7% on the investment as an additional cost of property. To give effect to this accrual entries would be necessary somewhat as follows:

Asset Accounts (or a special account) . . . . .	\$7,000	
Income "Earned" during Organization and Construction . . . . .		\$7,000

The amount of the increment might of course be credited to capital surplus or some other proprietary account outside the income group, but this would simply beg the question. If there has been an unquestioned and recognizable increase in the total assets of the enterprise of \$7,000, with no borrowing and no additional investment by the stockholders, it is obvious that an income or profit of some kind has emerged. Incidentally, the rules of the Interstate Commerce Commission provide that interest charged to construction in excess of the amount paid or accrued on borrowed funds shall be credited to "Income from Unfunded Securities and Accounts."

The argument against the recognition in the accounts of implicit interest on proprietary funds employed during operations is applicable in some measure to the point in hand. (See Chapter XXI.)

**Going Value.** By "going value" is sometimes meant value in use as opposed to liquidation or scrap value. In this sense the term does not indicate a special increment or factor in the value of the enterprise but rather a point of view from which the values of plant assets, in particular, may be regarded. In the utility field, however, and occasionally in industrial appraisals, the term has been used to designate all or a portion of the estimated intangible value.

According to an interpretation that has been emphasized in some rate cases going value is measured by the special costs of developing and establishing the business, including preliminary advertising, cost of training personnel, experimental work, etc. From this standpoint going value

has some validity, especially as a factor in an equitable rate base. As explained earlier, however, there are practical difficulties in the way of segregating costs of the kind indicated which contribute to the legitimate investment in the enterprise from the charges currently assignable to revenue, and there is a serious danger of overestimating the amount that may reasonably be capitalized, particularly where the period of development is prolonged.

Under a less conservative conception largely confined to the utility field going value is viewed as comprehending all losses suffered from the end of the organization and construction period in the narrow sense to the beginning of an era of successful operation. The doctrine has also been advanced that a regulated enterprise should be permitted to accrue as an element of intangible value the compounded amount of the estimated fair return not realized during a reasonable developmental or pioneering period. These are special reflections of the theory that in view of the restrictions placed upon the earning power the investment in a public utility, and the fair return on such investment, are entitled to full protection. As suggested in the discussion of interest during construction, the granting of special additions to the rate base may prove to be an empty gesture on the part of the regulating authorities. There is no guaranty with respect to volume of business and without adequate patronage the enterprise has no means of making good early losses and income deficiencies.

In the competitive field the accumulation of early losses and deficits as intangible value or even as temporary deferred charges is entirely unsound. An element included in the recognized rate base of a utility may actually have a bearing on the level of charges to customers and hence upon net earnings, but in the unregulated business the losses suffered in the period of development do not contribute to the success of later years. Even if all concerns in a particular field started abreast, and went through concurrent lean periods, the losses suffered could not be viewed as effective costs of business in subsequent years, assuming that after the experimental and pioneering era had passed newcomers were able to enter the field without undergoing a similar term of financial hardship. For the particular enterprise, moreover, the final outcome may be bankruptcy and liquidation rather than successful operation, and it would be absurd in such a situation to continue to accumulate losses year after year as intangible value—in effect denying the existence of such losses. Even in an unregulated monopolistic business there is no sound basis for a treatment of outright losses as charges to future operations. The concern enjoying a monopoly will endeavor to set its prices and level of production at points which will yield the highest possible rate of return,

in the long run, and there is nothing in the situation which permits an additional exaction from customers to be made on account of losses suffered. (See discussion of plant losses in Chapter XIII.)

### QUESTIONS

1. List the principal types of factors which give rise to intangible assets.
2. What are the essential characteristics of the intangibles? Contrast the intangibles as a class with the other principal groups of assets.
3. What is meant by goodwill? Describe the principal phases of goodwill and indicate the extent to which they are interdependent.
4. List the principal types of intangibles based on governmental grants.
5. State and defend the orthodox rule with respect to the recognition of intangible values in the accounts. Can an exception be made in the case of such specific factors as patents?
6. "That the values recorded and reported by the accountant have little significance to investors or anyone else is made apparent by the failure of such figures to reflect even roughly the market values of outstanding securities." Do you agree?
7. "Intangible assets are peculiarly subject to misstatement and at the best have little or no independent realizable value. Under no circumstances, therefore, can such items properly be reported as assets in the balance sheet." Discuss.
8. "Goodwill arising without specific cost may be just as real and dependable as purchased goodwill. It is therefore ridiculous to make recognition hinge upon the question of cost." Discuss.
9. Point out some of the indirect costs of goodwill. Should such costs be systematically capitalized?
10. Discuss the nature and treatment of the original cost of patents and similar assets. When, if ever, can the cost of patent litigation be charged to property?
11. Where payment for intangibles is in the form of common stock what determines the amount of true cost? Illustrate the difficulty of apportioning the amount paid for a business enterprise between tangible and intangible assets.
12. "In practice concerns which might reasonably retain goodwill in their accounts usually write it off, while concerns whose circumstances do not support intangible value often fail to amortize their goodwill." Explain.
13. "Goodwill need not be amortized where current expenditures for advertising, etc. are charged to revenues as incurred." Do you agree?
14. Discuss the amortization of patents, copyrights, etc. How should the lump-sum cost of a considerable number of patents be amortized?
15. Under what circumstances may franchise values appear in the accounts?
16. Why should there be any question as to the validity of treating organization costs as assets? What is a sound position in this connection?
17. Discuss the amortization of organization costs.
18. "From the proprietary point of view interest paid or accrued during construction can be conceived as an asset, but from the enterprise point of view such interest is a return of funds to investors." Explain and discuss.
19. What line of argument is used to support the accruing of estimated interest on all capital as a cost of property in the public-utility field? Discuss.
20. "Recognizing interest on proprietary capital employed as an element in property cost is an extreme case of the booking of unrealized gain." Explain and discuss.
21. Explain the principal interpretations of "going value" and indicate the significance of each in both the utility and unregulated fields.



## XIX

### VALUATION OF INTANGIBLES

**Occasions for Appraisal—Outline of Process.** Estimating intangible value may be a phase of the general valuation made on the occasion of the outright purchase or sale of an enterprise, or in connection with reorganization or new financing. The need for a measuring of intangible value also arises when particular patents, copyrights, and similar assets are separately transferred. Numerous appraisals of intangibles have been made for the purpose of furnishing data required for income-tax returns.

That the basis of intangible value is future income is generally agreed, but unanimity of opinion as to the definition of income to be adopted and the general procedure which should be followed seems to be lacking. The old method of calculation which assumes that the amount of the intangibles is from two to five times the estimated average net profit per year fails to stress the level of earning power and is otherwise unsatisfactory. The sound general approach, as suggested in the preceding chapter, is that which recognizes the need for an appraisal of the enterprise as a going concern, and views the intangible value, if any, as the residuum found by deducting the amount of the tangible assets from the total value of the business.

The principal steps in the process are: (1) study of past earnings as a preliminary to making an estimate of future income; (2) preparation of estimates of the average annual income which may be expected; (3) appraisal of tangible assets; (4) ascertaining the fair or normal rate of return in the particular industry and average annual amount of differential or excess earnings; (5) valuation of differential income.

**Analysis of Record of Earnings.** In studying the record of the past as a guide to the future the period considered should presumably be not less than from three to five years. It is unwise to place great faith in short-term pictures of operations, particularly in view of the many difficulties involved in the determination of periodic income and the consequent limitations—even under the most favorable conditions—of the reported data. In this connection one cannot but marvel at the effect on the market prices of listed stocks of the announcement of the

earnings of a single quarter. In speculative circles apparently there is some tendency to project the most recent indication of earning power into the future in perpetuity. On the other hand it is to be doubted if anything can be gained—in the face of a constantly changing economic situation—by pushing the inquiry back more than eight to ten years at the most. It is cold comfort for the stockholders of a particular railway company, for example, to recall that their enterprise maintained an unbroken record of annual dividend payments for nearly eighty years, prior to the slump of the thirties, as this fine showing augurs very little for the future in view of the unfavorable conditions now found in the railway industry. The trends evidenced in past performances, especially where showing some persistence, are important, but here too caution must be exercised.

Reported earnings of the past should not be accepted without a careful scrutiny of valuation and accounting practices followed. In particular, attention should be given to inventory methods, depreciation and maintenance policies, treatment of bad debts, and disposition of organization and development costs. Unusual items of loss and gain should receive special attention, and changes in the scope and character of activities during the period under review should be considered in their relation to the amount and course of earnings.

**Estimating Prospective Income.** The next step is the translation of the revised record of the past, carefully interpreted, and tintured by observation and study of immediate conditions and tendencies, into an estimate of the earning power of the future. Here is the crux of the problem, and in the nature of the case the estimate can seldom be much better than an intelligent guess, which should be offered as such. Even when dealing with stable industries and very strongly situated companies the uncertainties are so great as to make positive and precise statements of what may be expected entirely unwarranted. There is here a real need for a touch of the conservatism which the accountant traditionally embraces, sometimes rather blindly. In general a report on future earnings should be in the form of a range of estimates, in round figures, for a limited period of, say, five years. In so far as feasible the estimates of net should of course be supported by the data of probable sales, expenses, taxes, and other pertinent elements.

The pattern of past earnings is important. An upward trend is of course encouraging, while a downward trend restricts expectations. Either stability or irregularity in the past suggests that the earnings of the future may follow a somewhat similar course. However, the pattern of past incomes, like the amounts, should not be taken too seriously.

A distinction should be drawn between the estimated earnings of the

future under new ownership and management and the income which will presumably be made available purely as a result of the acquisition of the existing enterprise with all its facilities. In other words the earning power which is subject to capitalization in the process of appraising the business as a going concern as a basis for negotiations between buyer and seller does not include the increase expected as a result of improved management, changes in production methods, and development of new products (unless it be assumed that it is possible to exert superior management and utilize new methods only through the acquisition of the business under consideration). Similarly an estimated earning power which assumes the sale of property and contraction of operations by the new owners cannot be capitalized without adjustment in finding the value of the enterprise as it stands.

For most enterprises the earnings of the future, like those of the past, may be expected to appear as a fluctuating series rather than as a stable stream. In general, however, it is not feasible to predict the year-to-year variations. All that can be hoped for are reasonable estimates of the average level of income which may be expected.

**Valuation and Adjustment of Tangible Assets.** As stated in the preceding chapter, the presence of intangible value is generally reflected in a level of earning power in excess of a normal rate of return on tangible resources. It follows that a necessary step in the appraisal of intangibles is the determination of the amount of tangible assets involved, and this is likely to require a critical examination or valuation. Presumably it is the fair market value of the tangibles, in their particular setting, which is effectively related to earning power.

The book figures are often reasonably satisfactory for the current assets, but the recorded data of fixed property are usually inadequate as evidence of market value, from the standpoint of either immediate liquidation or continued use. The general approach of the appraiser should be that of a prospective buyer who sees the resources in their present environment and who is assuming that operations will be continued in an effective manner. For standard plant property it is not unreasonable to emphasize cost of replacement, but this basis has little or no force in the case of obsolescent assets which will not be replaced in kind. The basis of the estimate of depreciation should not be confined to the "condition percentage" resulting from physical inspection. (See discussion of plant valuation in Chapter XIV.)

A total of tangible property must be determined which may reasonably be associated with the estimated earning power. This means that assets which will not be in use, or will be employed for some ancillary purpose not taken into account in estimating income, must be isolated. Similarly

where an enterprise has a large backlog of working capital in the form of cash balances or marketable securities an estimate must be made of the amount of working assets which can fairly be assumed to be required in connection with the realization of future income. Then in estimating future earnings the amount of income attributable to excess current resources should be excluded, and if such resources are actually to be taken over upon the transfer of the business a corresponding amount must be added to the estimated fair purchase price as otherwise determined. The estimate of required current assets should be liberal, and should recognize the need of a substantial "reserve" of cash or other liquid resources. Further, if the estimate of income depends upon the acquisition of additional resources this fact must be taken into account in presenting and utilizing the data of tangible property.

In other words, care must be taken to see to it that the estimates of tangible property and anticipated earnings are in harmony. This is essential to the making of a sound estimate of differential earnings. The final estimate of the value of the enterprise and its facilities, of course, must include the fair market value of all assets taken over, without regard to their connection with estimated earning power.

**Alternative Measures of Earning Power.** There are two main conceptions or measures of business income (ignoring a number of minor variations). On the one hand earning power may be expressed in terms of the final amount, after all charges, accruing to the residual proprietary interest, the common stockholder in the case of the corporation. The principal alternative is to state income from the managerial, all-capital point of view—the point of view of the enterprise in its entirety as an economic institution. As an approach to the valuation of the enterprise and—through such valuation—to an estimate of the amount of intangibles, the first conception is not altogether satisfactory, notwithstanding its common use in this connection. The value of the business as a whole is not influenced by the nature of the sources of the funds supplied, by the form of capitalization, except as it be assumed that continuity of operation is jeopardized by the nature of the rights of those who have furnished the requisite capital (and this consideration would be of no consequence to the buyer unless he agrees to assume the outstanding obligations as a part of the total price). It is true that the earning power and hence the value of the common stock in a given case may be affected by the use of senior securities in the financial structure of the enterprise, but neither the gross revenues nor net operating earnings of the business entity are influenced by the extent to which there is "trading on the equity." The ability of a manufacturing concern to make and sell shoes at the going price, for example, is neither enhanced nor diminished by

the fact that the capital employed is in part supplied by creditor-investors. There is some evidence, incidentally, that the possibility of increasing the amount of income available on a residual interest through the issue of bonds and preferred stock is more limited than has generally been assumed, and that opportunities of this character are likely to be temporary phenomena.

**Enterprise Earnings—Special Problems.** Assuming that for the purpose in hand net income is defined from the standpoint of the enterprise as a whole, a number of special problems arise. How, in the first place, shall taxes be treated in the calculations, especially income and profits taxes? From the standpoint of the operating management as such it is not unreasonable to hold that income taxes represent an application of the net revenue of the business rather than a charge against gross. In measuring income for the purpose of finding the market value of the enterprise, however, it may be urged that the value of the entity as a producer of taxes should be ignored, as this element is not subject to purchase by private parties. The crux of the matter from the standpoint of the private investor is the difficulty of estimating the tax burden under various conditions. To the extent that taxes are levied through the application of flat rates the problem is not an insoluble one, but the calculation becomes little more than a guess in the face of a complex and changing structure of differential taxes. Especially troublesome is a tax on undistributed profits; here the amount of the levy is determined not by the level of profits but by the decision of the management with respect to immediate distribution. Such taxes impose great difficulties even in setting up a clear conception of the position of the private owner, to say nothing of making a reliable estimate of the amount to be paid year by year in the future.

In connection with the problem of taxes in relation to earning power and enterprise valuation the point should also be mentioned that the amount of net available to those supplying the capital—in the broad sense—may be affected in some degree by the form of capital structure, since interest charges are generally an allowable deduction in computing taxable income whereas dividends on stock—whatever the class—are not.

What consideration, in the second place, should be given to interest on capital supplied by current creditors not explicitly entitled to share in income? The claims of such parties often account for a considerable portion of the total capital employed, and if such capital is deemed to be interest-free the average amount thereof should be deducted from the total of assets employed in estimating earning power and rate of return. It seems fair to assume, however, that interest on creditor-capital supplied, at roughly the prevailing commercial-paper rate, is buried in

operating charges—in the form of prices for goods and services furnished—and that the amount should be estimated and added to earnings on capital as otherwise ascertained.

In defining business income in the process of appraising the enterprise it is necessary to adopt a broad conception of the scope of the undertaking. To the buyer or seller, that is, the value of the concern is based not on the earning power as represented by the major operating activities but on the net resulting after taking into account all incidental items and all losses and gains to which the business may be subject. This does not deny the advisability in some cases, in the preparation of the estimates, of the segregation of ancillary income and the assets especially associated with such income.

**Estimating Normal Income Rate.** Ascertaining the normal rate of return is partly a matter of definition and partly a problem of finding the necessary data. In the field of utility regulation the emphasis is laid on the "fair" or "reasonable" rates to which the invested capital is entitled. In the analysis of the relation between costs and prices the interest or profit rates which are the object of attention are those which are "marginal," "effective," or "determining." The central conception seems to be that of a rate sufficient to hold capital and attract additional funds as needed for the reasonable growth of the industry. In the actual work of appraising securities and enterprises it is ordinarily assumed that "typical" or "representative" rates are satisfactory indices of normal earning power.

Earning rates vary somewhat from field to field as a result of differences in the length of the development period, the degree to which income fluctuates, and many other factors, and an effort should therefore be made—in any given case—to base the estimated rate upon conditions in the particular industry. The data to be found in government publications, trade-association compilations, and elsewhere, derived from the reports of particular enterprises and groups of concerns, are useful in this connection. Care must of course be taken in interpreting published rates of return and in applying such rates to specific problems of valuation. In many cases the asset accounts show costs, or costs less estimated depreciation, rather than market values, and marked differences result from the varying dates of acquisition and lack of uniformity of depreciation policies and methods. In some concerns the accounts have been adjusted to reflect the data of special appraisals, and as a result are a hodgepodge of estimated values and costs—a condition which magnifies the difficulty of interpreting reported income rates. Where estimated intangible values are already included the apparent earning power is not significant as an evidence of normal return on tangible property. It

should also be borne in mind that the price of capital, like other prices, is subject to change, and that earning records of past periods may therefore have little significance. On the other hand the assumption that the most recent evidences of earning power reflect normal rates of return must be avoided. The fact, for example, that only a few companies make a net return on invested capital in a year of acute depression does not mean that business capital has become a free productive factor; and similarly the high returns of a boom year should not be viewed as representing normal rates. In public-utility regulation fair rates have usually been set at from five to seven per cent per annum of the recognized value of the property employed. In the more competitive fields it is generally assumed that greater risks are involved and that the range of effective normal rates is therefore somewhat higher than that represented by the typical decisions with respect to fair returns for the utilities.

Most available tabulations of business earnings present rates of profit on either the total equity of the stockholders or that of the common stockholders rather than returns on the entire capital as represented by all resources committed to the undertaking. To convert such data into enterprise earning rates it is necessary to add interest on all borrowed funds (including estimated interest on creditors' accounts which do not bear contractual interest) to reported profits and apply the revised income to the total of the associated tangible assets. Unfortunately it is often difficult to obtain the information necessary to do this. Where the published information is confined to particular profit rates or groups of rates, with no supporting figures, it is of course impossible to make the adjustment indicated.

**Computing Normal and Differential Earnings.** Having estimated an appropriate normal rate of return the amount of normal earnings for the particular situation is found by applying such rate to the estimated amount of tangible assets that will be employed. If the result of this computation exceeds the total estimated income for the enterprise the value of the business as a going concern is less than the amount of the tangible facilities, appraised individually. In this case the *maximum* bid which can reasonably be made for the enterprise is the present value of the average estimated income in perpetuity capitalized at the estimated normal rate. Suppose, for example, that the estimated annual income is \$50,000, the appraised value of the associated tangibles is \$1,000,000, and that the rate which capital should be expected to yield in the field is 6%. The maximum market value of the business of the going concern under these conditions is not \$1,000,000, but the value of a perpetual annuity of \$50,000 discounted at 6%, or \$833,333.33. On the other hand, if the estimated future income per annum is greater than the

amount of the periodic normal income on tangibles, the enterprise exhibits a condition of superior earning power and intangible value. For example, with an anticipated income of \$150,000, tangible assets of \$1,000,000, and a normal rate of 6%, there is a differential income of \$90,000, and the estimated fair market value of the enterprise as a going concern exceeds the amount of tangibles by the estimated value of this differential earning power. The validity of this form of computation, it should be recognized, depends upon the reasonableness of the assumption that the business can be expected to earn a normal rate of return on tangible resources for an indefinite period.

**Valuation of Differential Income.** The first consideration to be emphasized is that earnings in excess of a normal or reasonable rate of return on tangible assets employed are likely to persist for a comparatively short period. In other words an investment in the prospective top layer of income can safely be made only on the basis of a conservative judgment as to the duration of such income. There is still such a thing as competition, and the hazards of business operation in other respects are very real. Longstanding superior rates of return—ignoring those artificially produced by arbitrary treatment of assets and expenses—are a rarity. Moreover, the persistence of genuine excess earnings in a particular case for a considerable time may not be the result of special factors and conditions present when the business was acquired and for which a price was paid, but may reflect instead new developments brought about, perhaps, by the efforts of the new owners and managers. And it is clear that while a buyer may reasonably be willing to pay a premium for the peculiar momentum a business has achieved to date he is not justified in investing in future earnings which may flow from conditions not present at date of purchase, and which will necessitate additional expenditures later.

The duration of superior earnings and hence of the intangible value will depend in substantial measure upon the type of factor primarily responsible for the unusual degree of success attained by the business. Where basic patents are a major influence, for example, there may be good ground for expecting the level of earnings to persist throughout the remaining life of the granted rights. Control of the source of supply of one or more essential raw materials is another form of monopoly which may contribute to a high rate of return on investment for a considerable period. On the other hand the special earning power based upon the factors comprehended in ordinary goodwill is not likely to be a long-lived phenomenon. As a general rule the estimated life of differential income, for the purpose of estimating the market value of the enterprise, should not exceed five years, although in special cases an



estimate as high as ten years may be justified. In any given situation the figure assumed cannot be much better than an intelligent guess. The larger the percentage of differential income to total net, it may be added, the less assured is the prospect that such income will be realized for any considerable period.

What rate should be applied to the series of estimated excess incomes in finding the present value? Should the normal rate which is deemed to be applicable to tangible assets be used, or a rate commensurate with the greater risk which may be assumed to attach to the differential section of income? It may be argued that if the duration of the superior layer of earnings is conservatively estimated the investment in such earnings is no less secure than the investment in the layer matching the tangible assets, and that therefore the same rate of return is applicable to both elements. On the other hand there is some justification for the view that excess earnings are in general more perilously situated than normal incomes, aside from the question of duration, and that a relatively high rate should be employed in estimating the market value of such earnings even where they are considered as a short-lived annuity. An important special factor which must not be lost sight of is that represented by existing and prospective taxes on excess profits; private enjoyment of extraordinary profits is seriously restricted by the tax structure.

There is no serious objection to the valuation of differential income as an unlimited annuity provided a sufficiently high rate is employed in the computation. Some writers have suggested that the earnings in excess of normal be divided into two or more levels, each of which is subject to a different rate in the process of discounting. It is to be doubted if such refinement is advisable as a practical matter, in view of the inherent limitations attaching to any valuation of intangibles.

The common method of computing the value of differential income by applying a multiplier is never wholly satisfactory, and is definitely objectionable where the figure used is the number of years through which the special earning power may be expected to persist. If, for example, excess earnings of \$100,000 per year will presumably be available for five years it is not reasonable to assume that the market value is five times \$100,000, or \$500,000. If a proper rate of return in the light of the risk involved is 10%, compounded semiannually, the present worth of the series—viewed as an annuity realizable in the amount of \$50,000 at the end of each half-year period—is \$386,086.75. (This amount is found by multiplying the tenth figure in the 5% column of Table 2, Chapter XXVIII, by 50,000.) However, if the stream of expected differential income is viewed as an unlimited or indefinite series,

and the multiplier applied reflects the rate deemed to be necessary under this assumption, the simpler method of computation can be defended as amounting to capitalization in perpetuity. If, for example, excess earnings of \$100,000 per year are anticipated, for an unknown number of years, and a rate of return of 20% per annum is required under the circumstances, the estimated value of the excess income is  $\$100,000/.20$  or \$500,000 ( $5 \times \$100,000$ ). With the same conditions except that the rate required is set at  $16\frac{2}{3}\%$  the estimated value is \$600,000 ( $6 \times \$100,000$ ). It should be understood that the proper multiplier is not the number of years through which the differential income is expected to persist but is found by dividing 100 by the assumed rate of capitalization.

That the reasonable rate on an investment in excess earnings must be higher than the rate on an investment in normal income has been recognized by the Treasury Department in numerous valuations for tax purposes.

**Computation of Intangible Values Illustrated.** In an analysis of the affairs of the M Co. as of January 1, 1941, in connection with a proposed merger, the following facts and opinions are disclosed: (1) net book value of current assets, \$500,000; (2) net appraised value of current assets, \$500,000; (3) net book value of fixed assets, \$1,200,000; (4) net appraised value of fixed assets, \$1,405,000; (5) market value of government bonds included in net appraised value of current assets, \$205,000; (6) net appraised value of plant assets which are expected to be sold at appraised amount by new owners, the proceeds to be applied to reduction of interest-bearing debt, \$100,000; (7) average annual net profit to stockholders for past ten years, as shown by books, \$175,000; (8) average annual net profit for past three years, per books, \$225,000; (9) average annual interest earned on government bonds for past three years, \$8,000; (10) special loss recognized in determining profits for immediately preceding year and not likely to recur, \$15,000; (11) average depreciation charge for past three years if based on current costs of plant would exceed average charge actually booked (\$50,000) by \$7,500; (12) all plant assets are of standard, modern type and are appraised on the basis of estimated replacement cost less estimated accrued depreciation computed by straight-line method; (13) the average depreciation booked for the past three years on the plant mentioned under (6) is \$5,000, and on the basis of current replacement cost this figure would be increased to \$5,750; (14) no intangible values appear on the books, although the Company has a number of important trade names and a very favorable position in the industry; (15) average level of sales and other gross earnings anticipated for the next five years is \$990,000, an increase of 10% over the

average sales of the past three years; (16) it is expected that the government bonds referred to under (5) will be sold by the new owners and that of the proceeds the amount of \$150,000 will be invested in new plant (which will be ready for use on January 1, 1942) while the balance will be absorbed in working capital; (17) annual rate of depreciation which will presumably be applied to the new plant when completed is 4%; (18) average of operating expenses and taxes booked for past three years, including depreciation and effect of the special loss mentioned above, \$657,000; (19) it is assumed that the increase in sales will be accompanied by a proportionate increase in operating charges, exclusive of depreciation and special loss, and in taxes, ignoring possible changes in rates; (20) estimated annual increase in income and profits taxes for next five years resulting from changes in rates and other modifications, \$10,000; (21) interest-bearing liabilities for the past three years have stood unchanged at \$300,000, with average annual charges thereon of \$18,000; (22) liabilities carrying no explicit interest have averaged \$100,000 for past three years and now stand at this figure; (23) no changes in liabilities are anticipated in next few years other than immediate retirement of debt amounting to \$100,000, and an increase in the average of non-interest-bearing accounts to \$120,000; (24) for the purpose of estimating present value superior earnings are assumed to have a life of only five years; (25) estimated representative rate of return on all capital (including capital accounted for by current liabilities) for the industry of which the M Co. is a part is 7% per annum; (26) the normal or typical rate of profit—return on stock equity—for the field is estimated at 8%; (27) it is assumed that the enterprise can earn a normal rate on its tangible assets in perpetuity; (28) estimated rate to be used in discounting differential income is 10%, compounded semiannually.

Under these conditions the first step in computing the estimated average normal and differential earnings for the next five years in terms of all capital employed is the compilation of the adjusted data of revenues and operating charges and taxes. The annual gross is set at \$990,000. The expected operating charges and taxes are computed as shown by the table appearing at top of page 431.

The average expected net return after expenses and taxes is therefore \$990,000 less \$728,750, or \$261,250. A further adjustment is necessary, however, in view of the fact that expenses presumably include implicit interest on the capital provided by creditors who do not explicitly share in earnings. Applying the estimated all-capital rate of 7% to the estimated average amount of such liabilities, \$120,000, yields \$8,400, and adding this amount to the net as otherwise calculated gives a final estimated average net return on all capital of \$269,650.

Average charges booked for expenses and taxes, after elimination of depreciation of \$50,000 and effect of special loss		\$602,000
Increase of 10% accompanying increase in volume of business		60,200
Average annual depreciation—		
As booked	\$50,000	
Increase to appraisal basis	7,500	\$57,500
Depreciation on plant to be immediately sold, appraisal basis		5,750
	\$51,750	
Average depreciation charge on new plant *	4,800	56,550
Estimated additional increase in taxes		10,000
		<u>\$728,750</u>

\* The depreciation on new plant is \$6,000 per year but since it is in use for but four of the five years under consideration the annual average for the entire period is only \$4,800.

The next step is to compile the estimate of tangible resources it is expected will be associated with the production of the estimated earnings. With the conditions given this is done as follows:

Net appraised value of current assets		\$ 500,000
Net appraised value of fixed assets		1,405,000
		<u>\$1,905,000</u>
Estimated value of plant to be liquidated and applied to reduction of liabilities	\$100,000	
Government bonds to be disposed of	205,000	305,000
		<u>\$1,600,000</u>
Average investment in new plant and working-capital assets as result of sale of bonds *	\$205,000	
Increase in current assets represented by increase in current liabilities	20,000	225,000
		<u>\$1,825,000</u>

\* While the date of completion of new plant is set at one year after date of appraisal it is assumed that the funds derived from the sale of bonds will be continuously in use either as current assets or plant. It is further assumed that funds matching depreciation of this and other elements of plant will be continuously employed in the business during the period of five years under consideration.

The third step is the isolation of differential earnings by applying the estimated normal rate on all capital, 7%, to the adjusted figure for tangibles of \$1,825,000. The amount of annual earning power so absorbed is \$127,750. Subtracting this amount from the estimated net of \$269,650 leaves a level of superior earnings of \$141,900. The estimated value of such earnings, viewed as a semiannual annuity of \$70,950 for a period of five years, at a semiannual rate of 5%, is \$547,857.09. (This amount is found by multiplying the tenth figure in the 5% column of Table 2, Chapter XXVIII, by 70,950.)

The estimated fair market value of the enterprise as of the date of the appraisal is now found as follows:

Net appraised value of tangible assets taken over . . . . .	\$1,905,000.00
Estimated value of intangibles . . . . .	547,857.09
Estimated value of enterprise . . . . .	<u>\$2,452,857.09</u>

To finance the purchase of the business on this basis it would be necessary to assume the existing liabilities of \$400,000 and provide proprietary funds of \$2,052,857.09.

In this treatment the entire differential element in future earnings is considered to attach to the M Co. as the enterprise now stands. It is assumed, in other words, that the minor adjustments which may be expected to accompany a change in ownership, including possible changes in personnel, have no significant bearing on the question of superior earning power.

If the outlook for a continuing high level of earnings is such that an assumption of a definite life for the differential layer seems to be unwarranted, an estimate of intangible value may be prepared by treating the excess income as an annuity of indeterminate length subject to discount at a rate which makes adequate allowance for the unusual risk involved. With an annual rate of 20%, for example, the estimated value of a perpetual differential income of \$141,900 per year is \$709,500.

The foregoing data may also be used to illustrate a valuation based on the proprietary conception of earning power. With the net earnings on all capital estimated at \$269,650, the average net profit on stock equity is found by deducting the explicit interest charges of \$12,000 on the interest-bearing debt which is to remain outstanding plus the estimated interest on other debt of \$8,400, the result being \$249,250. The proprietary investment in the tangible assets to be employed in producing this profit is \$1,505,000 (the total of the estimated tangibles associated with this earning power, \$1,825,000, less the average liabilities of \$320,000), and the normal return on this investment is 8% or \$120,400. The average annual excess net profit is accordingly \$128,850 (\$249,250 less \$120,400). Again applying a rate of 10% per annum (5% per half-year) and assuming that the differential profits are realizable in the amount of \$64,425 at the end of every six months for five years, the present value of such profits is found to be \$497,472.77—a figure not greatly different from the value of intangibles as found by the enterprise approach. As explained earlier the objection to the use of proprietary profits rather than enterprise earnings as the route to the valuation of intangibles lies in the fact that the effect of a particular form of capital structure—which may not be a matter of any interest to the buyer—is

thus introduced into the valuation. If the capitalization of the concern which is being appraised is typical of conditions found in the industry, and from which the estimates of the normal all-capital and profit rates are derived, the two approaches are likely to give similar results. On the other hand if the business under consideration has employed borrowed funds to an unusual extent (or has avoided borrowing to an unusual degree) the profit record in the narrow sense may be in part the result of this condition and hence may be a poor indication of the earning power of the enterprise as an economic entity. Most accountants favor the use of the proprietary conception and form of computation as a practical matter, particularly in view of the hypothetical character of any adjustment for implicit interest and the fact that available rates are usually profit rates rather than returns on total resources employed.

The differential earnings, as previously pointed out, may be divided into two or more levels each of which is subject to separate valuation. For example, the estimated excess earnings of the M Co. might be broken up as follows:

Income above normal but not in excess of 10% on tangibles . . .	\$ 54,750
Income above 10% of tangibles but not in excess of 15% . . .	87,150
Total differential earnings. . . . .	<u>\$141,900</u>

Each of these layers might then be discounted at a different rate. The first, for example, might be valued at 10%, and the second at 12%. Another possibility would be to apply the same rate throughout but recognize a different life expectancy for each layer. Thus the first level of excess income might be assumed to persist for eight years, and the second for three years. A combination of these procedures represents still another variation in method. As a rule such devices tend to produce more conservative results than the method outlined above, and they have special justification where the indicated earning power for the immediate future is phenomenally high.

The data given for this artificial case are not intended as an exhaustive list of the facts and estimates necessary as a foundation for the determination of intangible value in general or for any particular situation. The purpose of the example is rather to suggest the broad scope of the inquiry which should be made. The information as to revenues, expenses, and tangible assets should be as complete as possible. Special attention should be given to the matter of income and excess-profits taxes. No matter how careful the investigation and full the compilation of results, moreover, the final estimates will have little validity unless the available data are interpreted and used with discrimination and sound judgment. It should also be remembered that in dealing with the complex question

of the value of the business enterprise it is often desirable to set up a range of estimates rather than a single definite conclusion. The fair market value of the enterprise is bound to be a matter of estimate, and the price at which a concern actually changes hands is likely to represent a compromise between a number of interpretations and opinions.

**Valuation of Patents and Similar Factors.** The object of valuation in some instances is the specific patent, copyright, trade-mark, or similar asset rather than the enterprise as a whole. Here the appraiser faces the additional task of isolating that portion of the estimated differential earnings which may be assigned to the particular element under consideration. As has been explained, the allocation of earning power to general goodwill on the one hand and to such factors as patents on the other is seldom possible on any but an arbitrary basis, to say nothing of the segregation of the income produced by an individual patent, copyright, or the like. Where the factor being appraised has been licensed or leased the record of past sales or royalties furnishes a guide to the gross revenues which may be expected. Occasionally it may be sound to assume that the entire amount of differential earnings realized in the past by the owner has been due to a particular patent or similar element. Where the situation is uncertain—the typical condition—a very conservative position should be taken by the appraiser who is attempting to estimate independent fair market value, particularly in view of the fact that the separate transfer of an intangible to a new owner and a changed setting may easily result in a loss of earning power.

Assuming that the immediate earning power of the specific intangible has been determined the questions of duration and applicable rate arise. For patents, copyrights, etc. the unexpired term of the grant represents in general the maximum economic life (although there is a possibility that the business momentum founded on the terminable monopolistic condition will carry on beyond the legal date of expiration). In many cases, however, it is unsafe for a prospective buyer to assume that the level of income will persist for more than four or five years at the most. With respect to the process of discounting the estimated income it seems reasonable to conclude that the rate used for specific intangibles with an established earning power and definite legal life may be somewhat lower than that required in the valuation of general goodwill.

In valuations in practice there is some tendency to assign all or a major portion of the estimated intangible value to patents, copyrights, etc., rather than to goodwill. This is due in part to the feeling that such factors are less imponderable and questionable than goodwill, and also to the difficulty of convincing the Treasury Department that it is proper to write off general intangibles for income-tax purposes.

**Relation of Valuation and Amortization.** It is sometimes held that since the existence of intangibles depends upon earning power the cost or value of goodwill may be maintained on the books undisturbed so long as the level of income does not fall below that implicit in the original purchase or valuation. This position is objectionable in that it is inconsistent with the assumptions ordinarily made in determining the intangible value. If the amount of goodwill as acquired is conceived as the present worth of a terminable series of special incomes it would seem to follow that the asset should be written off against revenues through the period in which such incomes are expected to be realized. For example, if in the transfer of the M Co. (see preceding illustration) a payment of \$547,857.09 is made for the estimated differential incomes, this investment in intangibles is logically subject to amortization by the compound-interest method at a rate of 5% per half-year through a period of five years. The fact that the level of earnings is maintained or even increased for a period longer than expected does not warrant the conclusion that the goodwill recognized should not be written off. The superior earnings of later periods may be due to factors and conditions not present when the business was acquired; and even if subsequent circumstances indicate that the excess earnings attributable to the original factors were underestimated it is preferable to view the unexpected incomes as profits resulting from a favorable turn of events rather than as a justification for deferring the amortization of goodwill, and thus in effect admitting an appreciation of this asset. In general there is no basis for associating any element of income realized with the cost of goodwill—a condition which makes it all the more necessary that a conservative schedule of amortization be adopted. The sound assumption is that where the excess earnings are received as anticipated they represent the recovery of the investment in such earnings, and that to the extent that income is not realized as forecast the cost of intangibles must be written off as a loss.

In the case of the intangible value of \$547,857.09, derived as has been explained, the amortization entries for the first half-year on the compound-interest basis at 5% are:

Amortization of Intangibles . . . . .	\$43,557.14
Allowance for Amortization (or intangibles account, directly) . . . . .	\$43,557.14

For the second half year the entries are:

Amortization of Intangibles . . . . .	\$45,735.00
Allowance for Amortization (or intangibles account, directly) . . . . .	\$45,735.00

(The initial charge is found by multiplying the tenth figure in the 5% column of Table 3, Chapter XXVIII, by 547,857.09.)



See discussion of amortization procedure in preceding chapter.

**Intangibles in Utility Valuation.** Ever since the dictum was laid down that a public utility is entitled to a "fair return" on a "fair value" of the property used in producing service, including "going value," there has been persistent effort to have some estimate of intangible value recognized as part of the base on which the enterprise is entitled to earn. In appraising going value in rate cases both the "actual-cost" and "reproduction-cost" approaches have been employed. Under the first an attempt is made to discover the actual cost to the enterprise under consideration, for a reasonable period, of organizing, establishing records, training personnel, soliciting business, etc. Under the second approach estimates are prepared designed to show what it would cost under prevailing conditions to establish the enterprise with the volume of business attained. The relative merits of the two methods of valuation for the purposes of equitable regulation have been intensively debated before courts and commissions, but neither has found full acceptance and neither has been entirely rejected. In dealing with tangible resources regulatory bodies have generally displayed a marked interest in estimates of reproduction cost, and somewhat the same attitude is reflected in many decisions regarding intangible values.

As pointed out in the preceding chapter there is substantial validity in the doctrine that going value is a proper element in the rate base to the extent that it represents reasonable costs incurred, during a reasonable period of time, to launch and develop the enterprise. It was also pointed out that the capitalization of early losses and deficiencies in return during an extended "pioneering" period has little or no justification. Absurd calculations have sometimes been presented in rate cases in this connection. With a full acceptance of the "guaranteed-industry" doctrine valuation for rate purposes becomes simply a matter of determining the amount of capital invested and amounts withdrawn, coupled with a process of compounding under which the appropriate rate is applied to periodic balances. If, for example, a guaranteed investment of \$100,000 were made in a utility enterprise and there were no additional investment and no dividends for a period of twelve years, the rate base would have more than doubled, using a fair return of 6%, without reference to the actual record of operations and employed resources.

The existence of general intangible value based upon superior earning power represents a condition in the utility field which is not in harmony with the ordinary conception of adequate regulation. Superior earning power, in other words, is incompatible with a system under which income is restricted to a "fair rate of return." This does not mean, as a practical matter, that there is no possibility that a regulated business may earn a

differential income, particularly for a short period. Adequate regulation does not imply rigid restriction of the earning power of each enterprise, continuously, to a minimum "fair" rate.

### QUESTIONS

1. Under what circumstances is it necessary to appraise intangibles?
2. Outline the process of isolating differential income.
3. What are some of the points requiring investigation when studying past earnings as a means of predicting future income? How long a period should be covered?
4. "The price paid for an enterprise need not cover the full value of the earnings expected to be realized under the new management." Explain.
5. Why is it not possible to find the proper value of an enterprise by capitalizing expected earnings without appraising the tangible assets?
6. Explain the two main measures of business earnings and discuss their applicability to the problem of appraising the value of the enterprise as a going concern.
7. Are income taxes a deduction in finding net earning power for the purpose of enterprise valuation? What treatment in this connection should be accorded interest paid on borrowed funds? Implicit interest on current accounts?
8. Discuss the problem of estimating normal rate of return.
9. Illustrate the computation of normal and differential earnings.
10. Discuss the valuation of superior earnings with particular attention to duration and rate of capitalization.
11. With assumed figures prepare a brief report for a prospective buyer covering an enterprise appraisal and outlining the computation of intangibles and the making of estimates of fair market value as a basis for negotiation.
12. What special difficulties are involved in the valuation of particular patents?
13. "As long as earning power is maintained at the expected level there is no objection to viewing the cost of goodwill as a permanent asset." Do you agree?
14. "Regardless of its validity the cost of goodwill should be written off as soon as the volume of revenues realized permits." Do you agree?
15. "The admission of goodwill or going value to the rate basis in a utility valuation is inconsistent with the purpose of the valuation." Discuss.

## XX

### INCOME DETERMINATION—REVENUE

**Conceptions of Business Income.** Determination of the periodic income of the business enterprise—the most significant and crucial phase of the accountant's task—is influenced by the fundamental approach adopted, and as a first step in an examination of the problem it is necessary to call attention to the principal points of view involved. Business income may be defined and measured from two main standpoints, (1) the proprietary and (2) the managerial. According to the first of these, periodic net income or profit is the amount accruing to the owners in the narrow sense—sole-proprietor, partners, or stockholders—as a result of the existence and activity of the enterprise (and net loss is similarly interpreted). This is the traditional point of view in accounting, and corresponds substantially to the conception employed in determining income for tax purposes and in other connections dominated by legal considerations. It emphasizes the controlling, residual interest rather than the enterprise as a whole, and does not encourage classification of deductions into expenses, losses, and contractual income distributions. In the case of a corporation with two or more classes of capital stock, it should be noted, there are corresponding subdivisions of proprietary profit.

The managerial conception stresses the business as an economic entity and interprets income, accordingly, as the return earned by the entire fund of capital employed, regardless of source. To the operating manager, concerned with effective utilization of all the resources at his disposal, there is no distinction between proprietary contributions and funds furnished by creditors. Net income from this standpoint is the excess of revenues over all charges assignable to such revenues as costs, before consideration of interest or other distributions to those who have furnished capital to the undertaking.

In recent years the managerial point of view has been increasingly emphasized by accountants, especially in the field of cost accounting, but the proprietary conception has continued to be more influential in the preparation of general income statements. It needs to be recognized that both approaches are entirely valid in particular areas, and that in

good income reporting both are fully reflected in the classifications employed.

**Economic Elements of Business Income.** The fact that business income is ordinarily a composite of fundamental economic elements or shares is important because of its bearing on certain controversial questions in income determination. In the small unincorporated concern the owner or owners ordinarily furnish both ordinary labor and managerial services as well as capital funds, and the income realized through the undertaking accordingly may be considered to include something by way of wages and salary as well as interest and profits. The earnings of such enterprises as law firms, accountants, and real-estate dealers are largely compensation for personal services rather than return on capital. In the corporate field the situation is quite different, especially among the larger companies. Here many of those contributing the capital furnish no ordinary labor service and exert a negligible influence upon immediate management. Moreover, where the corporate investor is active in the affairs of the company his services are usually acquired by purchase, on a definite contractual basis, and hence may be interpreted as a cost of operation rather than a distribution of income. Corporate net income may therefore be viewed in the typical case as consisting largely of an amalgam of interest and pure profits.

A special condition is found in the "close" corporation, where the principal stockholders are usually represented in the immediate management. Amounts charged to operation as officers' salaries in such cases are often determined by contracts that are not the result of bargaining on an ordinary commercial basis, and this means that an element of capital return may be distributed disguised as the cost of personal services.

**Enterprise and Departmental Income.** It is generally agreed that the basic unit of organization for accounting purposes is the specific business concern—sole-proprietorship, partnership, or corporation. At the same time accountants recognize the need for classification of revenues and costs departmentally and the desirability of disclosing departmental operating margins. Not infrequently, indeed, the single business entity includes two or more divisions or undertakings which are so distinct that from an operating standpoint the income data are more significant when considered departmentally than when viewed in combination. A particular corporation, for example, may happen to own a hotel and a greenhouse which are handled as independent operating departments. In all such situations the income statement of the enterprise as a whole, although an essential report for certain purposes, is lacking in vitality from the point of view of management, and separate statements covering the distinct activities are clearly required. Where the department has a

separate location and management it may be desirable to develop the divisional records to the point at which they constitute a self-balancing scheme of accounts. (See discussion of branch accounts in Chapter XXIX of *Essentials of Accounting*.)

In integrated departments within a single corporation the problem of giving adequate emphasis to departmental units without violation of the major premises of accounting is a difficult one. Assume, for example, that a dairy manufacturing company owns its own farm and herd, operating under a distinct management, and absorbs in its own plant the entire output of milk produced. Is the milk-producing division in this situation to have an income accounting of its own or shall its activities be submerged in the costs of manufacturing the final products? The manager of the farm department may well feel that his division should be placed upon the footing of an independent enterprise by treating deliveries to the plant as sales at regular market prices, and this position is by no means ridiculous. Accountants generally oppose the booking of department transfers as sales on the ground that this amounts to the recognition of income prior to genuine realization, but it is usually granted that the practice is not seriously objectionable for the purpose of obtaining reports for internal administrative use provided a proper adjustment is made in preparing the statements of the enterprise as a legal entity. As a rule, no doubt, it is possible to study the affairs of the nonselling department and pass reasonable judgments thereon on the basis of comparative cost analysis without the introduction of hypothetical revenue figures.

Mention should be made here of the practice of issuing consolidated reports of the affairs of a group of affiliated companies in which inter-company transactions are treated as transfers between departments of a single enterprise.

**Gross and Net Income.** The term "income" is occasionally applied to the total volume of revenue and is often used in describing intermediate balances in the income report. In the classifications of the Interstate Commerce Commission, for example, and in public-utility accounting generally, the aggregate of operating net and "nonoperating income" is labeled "gross income." In the trading and manufacturing field it is common practice to treat the excess of sales over cost of sales (in the narrow sense of merchandise or manufacturing cost) as "gross profit," and this usage has been adopted in the administration of Federal income taxation. Income derived from the sale of real estate or securities is usually similarly defined as the excess of the proceeds over the book value of the property sold, without considering the other costs which may be assigned to the transaction.

It would be a distinct improvement in the terminology of the income sheet if the term "gross"—if used at all—were restricted to the total volume of revenue before any adjustments or deductions, and if "income" were applied—aside from its use in the general heading—only to balances remaining after all costs assignable to the business of the period have been taken into account. "Profit," in turn, might well appear only when the net legally available for dividends is reached. This would facilitate a clear-cut presentation of the principal elements of the income sheet—revenue, costs chargeable to revenue, income or capital return, and the distribution or allocation of income. (See Chapter I for critical discussion of "gross-profit" convention and presentation of model form of income statement.)

**Evidences of Revenue—Sale Basis.** Under what circumstances, upon what occasions, is business revenue recognizable in the accounts? This question, although not considered highly controversial in practice, deserves careful consideration.

In the first place revenue arises primarily as a result of business activity and must be recognized and measured in terms of the essential features of operation. Second, revenue must be evidenced and supported by genuine asset values, preferably in liquid form. In enterprises producing or dealing in commodities the fundamental requirements are met, it is usually agreed, by accepting the completed sale as the test of revenue. The sale is viewed as the most significant of the chain of events making up the business process, the end toward which all efforts are directed. Upon the occasion of sale the product is separated from the producing business by delivery to the customer or is earmarked for future delivery. The sale, moreover, brings into being new assets in the form of cash or receivables, the amount of which—if operation is being profitably conducted—exceeds the total of assignable costs incurred.

There are a number of objections, from the standpoint of conservatism, to the use of the sale as the measure of revenue. For one thing failure to collect is a possibility, and in some lines the amount of bad accounts is substantial. This condition can be adequately taken care of, however, by an adjustment of recorded revenue based on a careful estimate of uncollectibles. In the second place the account receivable is not literally the equivalent of cash, and the credit sale, therefore, does not give rise, immediately, to disposable funds. This point has considerable force, but in view of the general relation of either the gross revenue or net income for the period to the assets (see discussion later) it is not at all decisive. The objection that collection expenses and charges resulting from guaranties and other conditions of sale are incurred after the sale is made can be met by reference to the recognized practice of accruing appropriate

reserves. The possibility that the customer will return the goods, another line of objection to the treatment of the sale as a conclusive step, can likewise be dealt with by periodic adjustments. (See discussion of sales adjustments in Chapter XVII of *Essentials of Accounting*.)

Objection may also be raised to the sale basis of measuring revenue on the ground that it is unduly conservative. Revenue is earned, it may be contended, by the entire process of production rather than by the specific act of sale, and should therefore be recognized in terms of extent of business activity as reflected in costs incurred. This position has theoretic merit; fundamentally revenue does result from—or arise in connection with—the sum total of operating activity. But it does not follow that it is feasible to record and report revenue on this general basis. The typical enterprise operates in a speculative market situation rather than under cost-plus contracts, and revenues do not appear in any dependable form until the efforts of the concern have been validated by decisive arrangements with customers. In general, therefore, the accumulation of cost is not a satisfactory substitute for sales as a gauge of “recordable” revenue.

**What Constitutes Sale?** Under some circumstances the taking of the order is referred to as a “sale,” and receipt of order may be a more significant event to the management than the consignment or delivery which, under the usual interpretation, marks the completed sale. However, even if the possibility of cancellation were ignored it would be quite impracticable to recognize revenue in terms of orders. Often the order is secured before the process of preparing the goods for delivery is completed—or even begun—and revenues can hardly be said to be earned in full while major costs remain to be incurred. The order as such, in fact, does not affect the assets and equities of the enterprise so long as the contract is wholly unperformed by both parties, although it may be indirectly represented on the books by the costs of making the contract. The so-called “short sale” is allied to the ordinary order in that it represents an undertaking to make delivery at some future date.

In defining the sale as a determinant of revenue the passing of title, a legal test, is usually deemed to be decisive. The application of this test, however, is often difficult, and basing accounting procedure on legal technicalities is not always expedient. In the case of approval shipments, for example, the risk of loss remains with the vendor during the approval period, and hence title does not pass until acceptance, explicit or implied, by the customer. Nevertheless the vendor may decide to book approval sales as revenue upon delivery as a matter of convenience, and this is not objectionable where the percentage of returns is small and proper adjustments are made at the end of each period. In the case of ordinary

credit sales title is usually said to pass at the point of shipment, upon delivery to the common carrier, when all transportation charges and insurance are assumed by the vendee, and at the point of destination, when all charges are paid by the vendor; but in both situations the booking of sales on the occasion of consignment is desirable practice from the standpoint of routine bookkeeping.

In unconditional sales contracts covering either specific goods or goods ready for immediate delivery to the buyer the general legal rule holds that title passes and revenue is realized by the seller when the contract of sale is executed. This rule is not altogether satisfactory for accounting purposes, particularly where nothing has been collected on the contract.

In doubtful cases the law relies upon the expressed intent of the contracting parties in determining whether or not a sale has been consummated; where no statement of intention is available an effort is made to find the object of the parties in the attendant circumstances.

**Furnishing Service.** Where the product is in the form of services rather than goods the act or process of furnishing the service is usually considered to be equivalent to sale and to be a proper basis for revenue recognition. If the service is furnished on a credit basis the accounting for revenue conforms to the pattern set for sales of goods on account; the customer is charged and revenue account is credited for each batch of services. Services, however, are not always "sold" in definite lots or installments which are subject to separate invoicing. For example, the services of an engineering firm engaged in drawing plans and supervising the building of a hydroelectric plant are in the form of a more or less continuous stream or series throughout the period of construction. Under such circumstances revenue may be recognized in terms of billings prepared for periods of time or broad stages of construction.

In many service lines payment is typically made by the customer at approximately the same time that the service is furnished. This is true, for example, of motion-picture theaters. Even in such situations, however, it is probably advisable to consider the delivery of product, rather than the collection of cash, as the occasion for revenue recognition. Often the customer makes payment in full for service to be rendered over a considerable period. An example is found in the transportation field in the sale of tickets covering long tours. Another type of example arises where rent covering the hire of real estate or equipment is collected in advance. In all such cases care must be taken to exclude the effect of prepayments covering service to be rendered in a later period from revenues of the current period.

**Revenue on a Cash Basis.** Recognizing revenue in terms of cash receipts is the principal alternative to the sales basis. (Both bases give



the same result of course in the case of cash sales.) With collection the transaction with the customer is ordinarily definitely closed, and the amount of revenue fully validated. Upon receiving cash the vendor has obtained the means of paying dividends or making expenditures for any other purpose. Revenue in the form of cash, in other words, is realized to the utmost; no succeeding event renders the fund more definite or more available.

Exception may be taken to these statements where goods have been sold under guaranties and there remains the possibility of incurring service costs even after collection has been made in full. Cash receipt as a measure of revenue is also lacking in finality where the goods sold may be returned and a claim for refund must be entertained.

The cash basis of recognizing revenue has been widely used by concerns making sales on the installment plan. This practice is founded in part on the view that the claims against customers are not valid evidence of revenue in view of the long period of collection and the danger of default. It also has some legal justification where the contract provides for retention of title by the vendor until all installments have been collected. With many enterprises the possibility of thereby deferring income-tax payments is no doubt the most potent reason for the adoption of the cash basis of reporting. For a full discussion of the procedure required in accounting for installment sales on the cash basis see Chapter XXX of *Essentials of Accounting*.

Enterprises furnishing services rather than selling goods often employ the cash basis. Where the service unit consists of a definite act or condition collection from the customer usually occurs at about the time the service is rendered and the entire transaction may readily be recorded as a cash sale. Where the unit of output is a complex series of services in the form of a professional engagement, the total price of which may not be known at the outset, it is convenient to await receipt of cash (on account or in full) before crediting revenue, although this may not result in a reasonable periodic assignment from an operating standpoint.

**Application of Costs to Cash Revenue.** In practice most systems of cash income accounting are unsatisfactory in that they fail to provide for a proper matching of revenue and expense—the essential requirement of a sound procedure. Under the typical treatment of installment sales on the collection basis all operating charges other than the cost of merchandise are deducted in the period in which the goods are sold, regardless of the timing of receipts on installment contracts.

Assume, for example, that in two successive periods of operation of a particular concern selling goods only on the installment plan the facts are as follows:

	<i>First</i>	<i>Second</i>
Sales . . . . .	\$100,000	\$50,000
Receipts . . . . .	40,000	90,000
Merchandise cost of sales . . . . .	60,000	30,000
Handling, selling, and other costs . . . . .	20,000	10,000

If there are no defaults or other complications the comparative operating report under these circumstances, as conventionally prepared on the cash basis, shows net results as in the following:

	<i>First</i>	<i>Second</i>
Receipts from installment contracts . . . . .	\$ 40,000	\$90,000
Merchandise cost applicable . . . . .	\$ 24,000	\$54,000
Handling, selling, and other costs . . . . .	20,000	10,000
Total deductions . . . . .	\$ 44,000	\$64,000
Net revenue * . . . . .	\$ 4,000	\$26,000

\* Loss in first period.

This reporting is definitely unreasonable in that an important part of total cost is charged to revenue on the sales basis rather than the receipts basis, which means that revenues and expenses do not reflect the same sections of operating activity. The correct treatment, which harmonizes revenue and the charges thereto, may be indicated as follows:

	<i>First</i>	<i>Second</i>
Receipts from installment contracts . . . . .	\$40,000	\$90,000
Merchandise cost applicable . . . . .	\$24,000	\$54,000
Handling, selling, and other costs applicable . . . . .	8,000	18,000
Total deductions . . . . .	\$32,000	\$72,000
Net revenue . . . . .	\$ 8,000	\$18,000

Under this procedure other costs are charged to cash collections in the same manner as is merchandise cost. That is, merchandise cost is applied to receipts in terms of the percentage of such cost to sales, 60% for each year, and all other costs are likewise applied in terms of percentage of such costs to sales, 20% for each year. It has been objected to by accountants on the ground that it involves setting up selling and other operating costs as deferred charges, and probably for the same reason has not won the approval of the Federal income-tax authorities. Nevertheless it is quite clear that a thoroughgoing shift from the sales-revenue basis to a receipts basis requires the periodic charging of all assignable costs to revenue in proportion to collections for the period rather than sales.

Similarly in enterprises furnishing services which report income on a cash basis reasonable results are obtained only where operating costs are appropriately assigned. For example, if a firm of accountants undertakes an engagement late in the year on which payroll and other costs incurred in December total \$5,000 although no fees are collected until the following year, inclusion of such costs in the expenses of the first period, with the entire revenue from the job credited to the second, tends to distort the comparative operating picture.

Placing revenue on a cash basis does not imply that expense should be measured by expenditure. Revenue is the controlling classification, and expense is simply the cost of the amount of revenue acknowledged. If receipts from customers are viewed as revenues the applicable expense is the cost of producing such receipts, not the cash disbursements made during the period. In the case of plant assets disbursements are commonly made in large amounts in advance of productive use, and at the other extreme are commodities and services which may be acquired and consumed prior to making payment. Periodic cash expenditures are accordingly no proper gauge of expense, whatever revenue basis may be adopted.

**Accrued and "Deferred" Revenues.** The accrual method of income reporting, broadly interpreted, is usually identified with the sales basis of measuring revenue, with accompanying recognition of receivables and determination of costs applicable to sales by means of inventories and related processes of valuation. In a narrower sense the term suggests the periodic apportionment of the effects of contracts involving the paying or receiving of interest, rent, wages, etc. on a time basis. An example of accrued revenue on a large scale arises in bank accounting in the form of interest earned on "loans and discounts."

The term "deferred revenue" is sometimes applied to amounts collected from customers or clients in advance of the delivery of goods or furnishing of service. As explained elsewhere the credits arising in this connection should be interpreted at the outset as a type of liability and should be absorbed in revenue only when earned. Under the best procedure the amount prepaid is credited directly to the customer's account as received, and when delivery is effected the customer is charged and revenue credited. Where collections in advance are numerous a special controlling account may be used to advantage.

Rent is often collected in advance, and here the amount earned is computed by periods rather than in terms of particular deliveries. In the casualty-insurance field—where the main stream of revenue first appears in deferred form—the premiums collected in advance do not represent either goods or services to be furnished particular parties (except in the

sense that protection is a service) and may therefore be credited to a general account. The periodic amount earned, however, must be based upon the conditions of the various contracts. The R Insurance Co., for example, receives premiums of \$100,000 on fire insurance policies written in the first year of operation. In summary—and ignoring relation to agents and other complications—the entries on the Company's books are:

Cash . . . . .	\$100,000	
Premiums Received on Fire Policies . . . . .		\$100,000

At the end of the period the amount of insurance earned in terms of a summation of the expired portions of the various contracts is \$30,000. The appropriate entries accordingly are:

Premiums Received on Fire Policies . . . . .	\$ 30,000	
Fire Insurance Revenue . . . . .		\$ 30,000

Deferred revenue in the insurance field should not be confused with the "reserves" established to cover the expected loss payments under particular groups of policies.

**Production and Revenue.** Attention has been called to the fact that while income may be imputed to business activity as a whole rather than to the specific act of sale or collection it is usually not expedient to attempt to accrue revenue on the books as a function of production. The principal situations in which there is some ground for making an exception to this general rule are: (1) production to order; (2) construction; (3) production of staples; (4) accretion or natural increase.

Goods on hand awaiting delivery under binding contracts, it is usually conceded, may reasonably be taken into inventory at the contract price less estimated delivery costs. This amounts to an admission that where sale is assured at a specified price the act of delivery is less important than the completion of physical production. This is of course a far cry from a complete shift to a production basis of recording revenue. In practice, moreover, most concerns which manufacture to order prefer to value finished goods on a basis which excludes the profit implicitly accrued. In the construction field, where production is to order and the particular job requires a considerable period for completion, it is orthodox to accrue income on the basis of percentage of completion on both work in process and finished work not finally delivered or released. (See discussion of this problem in Chapter VI.)

The use of net market value in inventorying unsold staple products in the extractive industries is a policy which has some standing in practice, particularly in farming (as a result of sponsorship by the Bureau of Internal Revenue). The principal theoretic support for this policy is

found in the contention that the essential phase of operation for concerns engaged in turning out basic materials, readily salable on a wide market at prevailing prices, is technical production rather than the somewhat incidental act of effecting sale. The process of natural growth and increase is an important phenomenon in some fields, and where it results in a larger or more valuable supply of marketable assets—as in herds, timber, or nursery stock—the accretion undoubtedly represents a form of “accruing” revenue. It does not follow, however, that it is generally expedient to attempt to recognize accretion periodically in connection with the explicit accounting for income. Recording the amount of accretion through supplementary accounts is not objectionable. (See Chapter VI for consideration of these matters from the standpoint of inventory valuation.)

Using the sale basis of acknowledging revenue with no modification to take account of the process of production will undoubtedly result in distorted income reckonings in certain types of situations. A possible remedy, not as yet much developed in practice, consists of the preparation of special reports designed to reflect estimated revenues and costs on an activity or output basis which may be used to supplement the regular income statements. Undoubtedly the conventional income report for the month, quarter, or year is not a very useful device for concerns engaged in construction and other fields where the volume of completed sales is often quite out of line with activity for the period. Another way of dealing with the difficulty is to substitute the job, project, or other unit of production for the year or other time period as the unit of reckoning for the purpose of measuring income. In this event interim reports would be confined to statements of costs incurred and technical progress.

**Production Basis Illustrated.** Granting the limitations of the production basis of revenue accounting it may still be worth while to indicate more specifically the general character of the procedure which would be required if such basis were fully adopted. Assume, for example, that the activities of a shipbuilding company in its first period of operation may be summarized as follows: (1) amount of contracts undertaken, \$1,000,000; (2) costs incurred on work completed and delivered, \$200,000; (3) costs incurred on jobs not finished (percentage of completion in terms of cost being 60%), \$360,000; (4) amount billed to customers on completed contracts, \$250,000; (5) amounts billed on unfinished work, in accordance with terms of contracts, \$150,000; (6) collections from customers, \$300,000. Using a gross-revenue account based on production and completely suppressing the sales account results in the following scheme of condensed entries:

(1)		
Costs Incurred (appropriately subdivided) . . . . .	\$560,000	
Cash (and other suitable accounts) . . . . .		\$560,000
To record costs of jobs undertaken as incurred		
(2)		
Costs Converted into Contract Prices . . . . .	250,000	
Revenue on Production Basis . . . . .		250,000
To recognize conversion of costs incurred on completed work into contract prices and resulting revenue accrued		
(3)		
Costs Converted into Contract Prices . . . . .	450,000	
Revenue on Production Basis . . . . .		450,000
To recognize conversion of costs incurred on unfinished work into contract prices (cost to date, \$360,000, plus 60% of excess of contract price of \$750,000 over total estimated cost of \$600,000) and resulting revenue accrued		
(4)		
Customers' Accounts . . . . .	250,000	
Costs Converted into Contract Prices . . . . .		250,000
To record billings on completed work		
(5)		
Cash . . . . .	300,000	
Customers' Accounts . . . . .		300,000
To record collections		
(6)		
Costs Assignable to Revenue . . . . .	560,000	
Costs Incurred . . . . .		560,000
To apply costs incurred to revenue accrued		

Under this treatment the billings on work in process are not recorded in formal entries, and the credit balance in customers' accounts would be reported as an advance on such work. The difference between the "accrued" revenues of \$700,000 and the assigned cost of \$560,000 is the estimated net revenue "earned" on the basis of production. This is made up of the amount of income on completed work, now definitely ascertainable, and the margin of \$90,000 accrued on unfinished work. The balance in the account with "costs converted," \$450,000, is the inventory of work in process valued in terms of contract price on the basis of percentage of completion.

**Nonoperating Gains.** That it is desirable in accounts and reports to distinguish gains resulting from the disposition of capital assets and other special occurrences from ordinary operating income is generally agreed, notwithstanding the fact that the distinction appears to count for little in the eyes of the law. Nonoperating gains often occur sporadically, and if their effects are buried in the operating classifications serious errors in interpretation are likely to result. It is easier to state the point, however, than to apply it in business affairs. The difficulty lies in developing an

acceptable conception of "operation" in the particular situation. One of the most common mistakes is to assume that operation in the typical enterprise is synonymous with production in the technical, physical sense. As has been previously pointed out, a business undertaking is carried forward in an economic fabric made up of a complex of factors, and ordinarily it is quite impossible to isolate the effects of price movements and other impinging conditions from the results of activity in the narrower sense. Moreover, the administration of a business consists in part of the efforts made to adapt the enterprise to the ebb and flow of the situation as a whole. To justify segregation as nonoperating items, therefore, gains or losses should be clearly extraordinary and connected with the avowed purposes of the business only in the most incidental way.

Operation may of course be divided into major and minor activities, and separation of the revenues and costs pertaining to each division is desirable for managerial purposes (although there is a limit to the extent to which it is feasible to elaborate the general income statement). The income of an investment trust, for example, consists on the one hand of dividends and interest earned on securities in the portfolio and on the other of gains (if any) realized through sales, conversions, etc. Where the trust is not engaged in active trading the second type of income is ancillary and should be so reported. It does not follow, however, that it is nonoperating in the broad sense of the term. If the organization were engaged primarily in speculating in securities the gains (or losses) from trading would constitute the major results of operation and dividends and interest would take on the character of supplementary income.

The accountant should seek to relate as well as to separate. The operation of an amusement park by a railway company, for example, may be so closely tied up with transportation that the revenue and expense arising in this connection may reasonably be reported in combination with transportation revenues and charges. Such treatment, at any rate, would be more appropriate than that which segregates the park data as "nonoperating." In the case of the hedging transactions undertaken by a converter, similarly, the resulting gain or loss may be viewed as an operating adjustment rather than as a separate financial item. At the same time care must be taken not to obscure the legitimate minor classifications and departments. The treatment often accorded the used-car department of the automobile distributor, which in effect converts discounts on new-car sales into loss on used-car sales, is an example of improper combination of results.

**Capital Gains.** Gains arising through the sale of real estate and other capital assets, it has been urged by some economists and accountants, do not represent true income and should therefore not be reported in

the income statement. The principal support for this position is found in the theory that such gains are a part of the underlying capital fund, in temporarily converted form. This opinion has real justification, from the standpoint of basic analysis, where the realized appreciation is primarily a reflection of the movement of prices in general. Assuming a stable dollar, however, it seems clear that a so-called capital gain constitutes genuine business income and may reasonably furnish a basis for dividends, from the point of view of good financial administration as well as from the legal standpoint.

A capital gain which has been accruing over a number of years is evidently not earned—in full—in the period in which realized. This fact, coupled with irregularity of occurrence and detachment from ordinary operating activity, furnishes support for the treatment of all or part of such a gain as a special surplus adjustment, and no serious objection can be offered to this practice provided full disclosure is made in the general income statement.

The increase in the proprietary equity resulting from an outright gift or bequest may be thought of as a "gain," in the very broad sense of the term, but it is clear that its effect should be excluded from both current income and accumulated earned surplus. The best treatment, where the amount is substantial, is to set up a special account, clearly labeled, which can be reported as an adjunct of capital. This recommendation need not be applied to incidental contributions such as "conscience" payments which are received from time to time; such items may be reported as miscellaneous income.

**Appreciation and Income.** Among the most controversial matters in accounting is the relation of appreciation to income. Broadly defined appreciation consists of the excess of the fair market value of commodities, securities, land, or other property owned over the actual cost or, in the case of depreciable and amortizable assets, the net book value. For highly marketable goods and securities the extent of the appreciation can be definitely determined by reference to market prices; in the case of real estate and other fixed assets the amount is the result of appraisal or estimate. Many accountants agree that where enhancement in value is unmistakable and is present in large amount it is not objectionable to give recognition thereto in the accounts and statements, although there is no consensus of opinion as to the details of how this should be done. Very few, however, are willing to view unrealized appreciation as genuine business income, no matter how apparent and fully validated the increase in value may be.

The usual arguments against crediting a write-up of assets to income account, in any of its subdivisions, may be indicated as follows:



1. Appreciation of existing assets does not bring about any increase in liquid funds and hence cannot be made a basis for dividend disbursements or payments for any other purpose.
2. An increase in the market value of property may be offset by a later decline and hence may never be realized.
3. Appreciation is based on estimate and hence the amount of the enhancement is uncertain.
4. Reporting of appreciation in the income statement, even if the item were clearly labeled and excluded from operating results, would not be conservative practice.
5. Appreciation is likely to be largely a reflection of a change in the general level of prices, and thus represents an adjustment of capital and existing surplus rather than true income.
6. Appreciation has no legal standing as income.

The first of these points is decisive in the case of fixed assets, but has less force as applied to current assets since operating income, validated and booked in accordance with the most orthodox tests and procedures, often is not matched by disposable funds. It is a commonplace that the amount of recognized earnings at a given stage of affairs may be tied up in receivables, inventories, or other assets. Moreover, genuine appreciation of either current or fixed assets may furnish a basis for the securing of liquid funds through the resulting increase in borrowing power. The second line of argument also has merit. Obviously appreciation of asset value is not on a level with ordinary receivables as evidence of the presence of earnings. At the same time it should be borne in mind that revenue realized by sale may not be collected, and when collected may be lost through subsequent developments. The third and fourth objections are less serious. No one has ever advocated booking appreciation except where the evidence is conclusive; and accountants have overworked the habit of attacking propositions by referring to the need for "conservatism." The fifth objection is important whenever the specific increase actually approximates the movement of prices as a whole, but is offset somewhat by the fact that conventional earned income likewise may not represent an increase in effective purchasing power. (See discussion of effect of change in the value of money in Chapter XXXIII.) The legal attitude is of decided consequence, if not controlling. The accountant is under obligation to report income in a manner that is acceptable in the eyes of the law, although this obligation does not prevent the disclosure of other significant figures.

Considering all angles of the problem it seems clear that no very substantial case can be made for systematic accrual of unrealized appreciation, period by period, in the income accounts of the typical enterprise.

As was pointed out in Chapter VII, however, a concern engaged in trading in or holding highly marketable securities may be justified in valuing securities on hand at market prices, thus recognizing either increase or decrease in value.

**Earned and Realized Income.** There are two main conceptions of "earned" revenue. Many would agree with the proposition that revenue is earned, in a fundamental sense, with the process of operation or, more precisely, with the accumulation of costs assignable to product. The principal alternative view considers revenue to be effectively earned only when the final product is delivered or furnished. A special application of the second conception is found in the interpretation of accrued interest, rent, etc. as earned. Increase in value in the form of accretion or appreciation is in a sense "earned" in the period or periods in which the enhancement occurs.

Earning should not be identified with realization. Revenue is fully "realized," according to the usual position, when it is represented by or supported by cash receipts, and it has become conventional to treat bona-fide current receivables as the equivalent of cash in this connection. Similarly the values represented by accretion or appreciation are viewed as unrealized until they are converted into cash or receivables, although a case can be made for the position that some forms of accretion (natural increase in a marketable herd, for example) are substantially realized. The term "paper profits" is often applied to the increase in market value of assets such as securities and occasionally is used in referring to earnings which have been realized through sale and immediately reinvested.

The point raised in the last sentence requires special attention. Are profits that are fully realized and recognizable in terms of individual transactions rendered invalid as an expression of periodic income because the funds represented have been absorbed in inventories or other forms of assets not immediately available for dividends? In other words, is income not to be reported because the necessities of business operation have required retention of the corresponding funds in the business? Unless the established conceptions and procedures associated with the measurement of business income are to be radically changed a negative answer to such questions is justified. Earned and realized income is not necessarily *distributable* income; a distinction should be drawn between income performance and income administration. If product which cost \$100, with all applicable charges included, is sold for \$110, an item of income in the amount of \$10 is definitely realized. The existence of circumstances which make it unwise to base a dividend on such income does not alter the fact of earning and realization. Income funds, like any other funds flowing through working capital, may be applied to the re-

tirement of liabilities or to the renewing or expanding of the stream of cost factors, as well as to dividends, and often conditions are such as to make advisable the foregoing of dividends for a considerable period. It should be understood that in reporting realized income the corporation is not thereby reporting the amount of dividends that may be expected in the near future. (See discussion of the statement of funds in Chapter XXX.)

Most accountants agree that earnings are not canceled by utilization in business activity. There is a school of thought, however, which seems to hold that if the investment of supposedly realized profits brings about no increase in the physical amount of inventory or in the extent of plant capacity the conclusion must be reached that there has been no effective realization. This view is especially common among supporters of "last-in, first-out" inventory policy, as was suggested in Chapter VI. If there is no increase in the quantity of the inventory, it is contended, there is no true income; "profits" that are fully absorbed in the replacing of stock at higher prices are not genuine income and should not be reported. This conclusion must also be rejected. Under the present framework of law and the conditions of business operation reported dollar profits do not purport to represent an actual increase in economic power. With an increasing price level a larger number of dollars must be available to maintain one's economic position; nevertheless any increase whatever (from business activity) constitutes taxable income and income legally available for dividend appropriations. Moreover, conventional income funds actually disbursed in the form of dividends often represent a diminution of capital in the sense of purchasing power although the legal capital in the form of dollars is being maintained intact.

Some accept the foregoing line of argument for most situations but still insist that for businesses in which a continuous "base stock" of homogeneous materials must be maintained and in which there is a continuous flow into and from the inventory reservoir it is not proper to recognize profits invested in higher costs of component elements of the inventory. It is again hard to find any convincing support for this opinion. If a profit can be realized by buying an elevator full of wheat at 80 cents a bushel and later selling the entire stock for \$1.00 per bushel why should this conclusion be altered by the assumption of a continuous stream of incoming and outgoing shipments? What is the fundamental distinction between buying and selling a series of distinct shiploads or other batches and the process of continuous buying and selling at the opposite sides of a homogeneous base stock? A succession of large, separate shipments becomes a stream if looked at from a long-run point of view. A dealer in farm produce has no more expectation of going

out of business than an oil refiner, and in both cases it is often necessary to use a part or all of realized profit funds to replenish the stream of merchandise or material acquisitions.

Under the thoroughgoing production basis of revenue accounting, as outlined earlier, revenue is booked which although earned has not been realized. (In the case of a job undertaken on a cost-plus contract, revenue earned on the basis of percentage of completion may perhaps be viewed as realized.) Under the sale and collection bases the revenue recognized has been both earned and realized.

From the standpoint of the stockholder's accounts income earned but not yet appropriated as dividends by the corporation in which he holds stock might be considered as a type of earned but unrealized income.

**Cost Saving versus Income.** In the discussion of the bases on which revenue may be considered to be earned or realized it was pointed out that income must not be recorded in terms of anticipation, before decisive action has been taken. This means, for one thing, that it is not expedient to assume that income arises in the act of buying or acquiring. Even where services, goods, or fixed property are acquired at what appears to be a "bargain" the assumption that a profit has thereby been earned and can be immediately recorded is unwarranted. Granting that able buying is desirable and may be a factor in maintaining or widening the margin of earnings as finally determined, it can be insisted that the buying process in itself determines the amount of cost incurred, not the amount of income. If costs are incurred on an exceptionally favorable basis, due to managerial skill or to other causes, the difference between such costs and a more normal or average level of charges should be interpreted as a saving or cost reduction rather than a profit. It should be noted, too, that the possibilities of reducing costs in this fashion are probably less common than is often assumed. As a rule there is no reason for assuming that a particular management has any peculiar ability in exacting concessions from those from whom it makes purchases as compared with other managements able to buy in the same markets and on a similar scale.

An outstanding example of confusion of a cost adjustment with income is found in the treatment of ordinary purchase discounts as earnings. Such discounts are essentially an offset to nominal cost figures and should be so accounted for. (For the argument and a full discussion of procedure see discussion of discounts in Chapter XIV of *Essentials of Accounting*.)

**Periodic Income and Liquid Assets.** A point mentioned earlier needs emphasis. Even when revenues are recorded on the basis of collections

from customers the amount of net for the period is seldom matched by a fund of cash or any other particular asset on hand at the end of the period. Often, indeed, the income earned is not available in full in working-capital form. It is true that particular items of revenue, under conventional accounting procedures, are supported immediately or soon by particular receipts of cash, but such receipts are not impounded and held intact as an income fund. As cash becomes available it is likely to be used to meet current obligations, expand inventories, acquire additional plant facilities, retire long-term debt, and for other purposes, which, although in no way impairing the validity of the income recognized, may make it unwise if not impossible to pay all or even a major part of the realized profits as dividends to the stockholders. This situation is often misunderstood by individual investors, by advocates of particular tax proposals, and even by persons actively connected with the management.

The relation of income to liquid resources, and the utilization of such resources, are subjects receiving detailed consideration later, particularly in Chapter XXX.

#### QUESTIONS

1. With simple illustrations explain the distinction between the proprietary and managerial conceptions of business income.

2. What are the principal economic elements represented in the net profits of General Motors Corporation? Detroit Edison Co.? Arthur Andersen & Co.?

3. With an illustration contrast the departmental and legal-entity points of view in income determination. Does the department whose product is entirely absorbed by other divisions of the enterprise produce any revenue?

4. Discuss the use of the term "gross income." Specifically, what are the objections to the "gross-profit" convention when used in the income statement of the enterprise as a whole?

5. What is meant by the "sale basis" of revenue recognition? State the principal considerations that support this basis.

6. "The sale basis of recording revenue is not sufficiently conservative." Explain and discuss. "The sale basis is too conservative." Explain.

7. State whether or not a sale is consummated under each of the following conditions: (1) receipt of a firm order for product not yet manufactured; (2) completion of product made to order; (3) receipt of an order accompanied by payment in full; (4) consignment of goods on ten-day approval; (5) consignment of goods on account, freight prepaid; (6) segregation of goods to fill order.

8. How should revenue be determined by a railway? A professional accounting firm? A fire-insurance company? A skating rink?

9. Describe the cash basis of recognizing revenue and indicate its principal applications. With an illustration explain the ideal method of measuring expenses when revenues are on this basis.

10. What is meant by accrued revenue? "Deferred" revenue? Illustrate in each case.

11. "Revenue is earned by the entire process of business activity, not by the act of sale alone." Discuss.

12. With an illustration show how revenues may be measured on the basis of progress of production. Under what circumstances can this basis be defended?

13. "The proper solution for the problem of revenue reporting in long-term construction is to abandon the period as the unit of reckoning." Do you agree? What is the alternative?

14. How should revenue be reported in the case of a cost-plus construction contract?

15. What is the relation of accretion and income?

16. Discuss the definition of "operation" in relation to the classification of revenues.

17. What is meant by a "capital gain"? Does receipt of a gift give rise to income?

18. What is meant by appreciation? Outline the argument for and against the recognition of unrealized appreciation as income. What bearing does the movement of the general price level have upon the significance of the appreciation of specific assets?

19. With examples contrast earned and realized income.

20. A. "Just made \$25!" B. "How did you manage it?" A. "Bought a Pekinese pup worth \$75 for \$50." Comment.

21. "If the accounts are properly handled and the affairs of the enterprise have been properly conducted the income for the year, to the extent not already disbursed as dividends, should be represented by cash or other liquid assets on hand." Do you agree?

## XXI

### INCOME DETERMINATION—CHARGES

**Matching Costs and Revenues.** In dealing with costs the accountant faces three tasks, more or less distinct. These are: (1) ascertaining and recording costs as incurred, appropriately classified; (2) tracing and reclassifying costs in terms of operating activity; (3) assigning costs to revenues. The first task is comparatively simple, and is taken care of in reasonably satisfactory fashion by most concerns having an accounting system worthy of the name. The second step is much more complex, and is less adequately dealt with; this is peculiarly the province of the cost accountant. The third stage is the most difficult and critical, from the standpoint of periodic income accounting, and even in large enterprises with highly developed records and procedures the handling of this phase of the accountant's work leaves a great deal to be desired. Matching costs and revenues requires much more than accuracy and first-class technique. Recording the inflow of costs as incurred is largely a matter of close observation and careful procedure; recording the outflow of costs as charges to revenue is essentially a process of imputation resting upon hypotheses.

The revenues of a particular period should be charged with the costs which are embodied in or associated with the product represented by such revenues. The question is, what are reasonable bases of association? Neither expenditure nor physical utilization is a fully satisfactory test of expense. The fuel expense for the period, for example, is not the amount paid for fuel (including liabilities incurred on this account) or the amount of fuel burned; it is rather the cost of fuel which can fairly be assigned to the volume of revenue recognized. Business managements generally accept this point of view in dealing with direct labor and the original costs of merchandise and materials, and under many cost systems the flow of labor and material charges is closely traced in terms of particular operations, departments, and units or classes of product. With respect to the indirect or overhead costs of operation, however, the situation is much less satisfactory. There has been some progress in the development of methods of associating such charges with primary activities and, finally, with periodic revenues, but in most concerns the treat-

ment of overhead costs remains on a very crude basis. Administrative costs, maintenance and depreciation, insurance, advertising, etc. are often charged to expense as incurred, with no effort to apportion them in reasonable relation to production and sales. Even the costs of buying and handling merchandise and materials are frequently disposed of in this fashion. The result is serious distortion of income reports, particularly monthly and quarterly statements.

There are practical difficulties in the way of achieving anything approaching an ideal joining of revenue and costs, but substantial improvement in present practices is entirely feasible and may be expected. Growing recognition of the possibility of classifying all costs into two main pools, production and distribution, into which costs of general administration may be absorbed, is providing a useful approach. Application of the concepts and procedures associated with budgeting to the assignment of charges to revenues is also proving helpful. Another development of importance in this connection is the increased emphasis on the income statement. Accountants are beginning to realize that their fundamental problem is not that of determining inventories for balance-sheet purposes but that of dividing the stream of costs incurred between the present and the future in the process of measuring periodic income.

**Association versus Cancellation.** A special technical point deserves mention. Matching or associating costs and revenues does not imply cancellation. Occasionally commissions, shipping costs, or other charges incurred at the point of sale are subtracted from the total of sales and only the balance is reported in the income sheet. Similarly interest earnings are sometimes credited to interest charges and only the net amount is disclosed. Such practices are objectionable. All costs actually incurred by the enterprise—all goods and services received and utilized and for which the concern assumes direct financial responsibility—must be recognized as costs, regardless of the point at which incurred or the method of effecting payment. Likewise the full amount of revenue—the total realized or realizable price of the product and the entire amount of any incidental earnings—should be reported as revenue. Cancellation does not affect the final net income, it is true, but it does obscure the amounts of the essential component factors in income measurement. Even in highly condensed statements there should be no cancellation.

**Current and Deferred Charges.** The distinction between current charges applicable to current revenue on the one hand and costs that should be deferred to future periods on the other is clear in principle but in the case of certain classes of outlays is not easily applied. All costs incurred prudently and in good faith can be assumed to contribute to the sum total of values attaching to the enterprise as the goods and



services involved are received, but the management may well be in doubt as to the proper disposition of some of the charges at the close of the period. Particularly hard to deal with are organization and developmental charges, rehabilitation costs, costs of litigation, advertising costs, and other charges which are not readily assignable to definite units of tangible property or to particular operating activities.

For all charges that do not bring about an evident increase in physical property the accountant has been inclined to recommend complete absorption as income-sheet items in the year the charges are incurred, unless the amount involved is so large that such treatment will result in "distortion of income." The large and unusual items of this character are commonly charged directly to surplus or are given the dubious status of "deferred charges," with the understanding that they are to be written off "as soon as possible." Such attitudes and practices do not deserve support. A business enterprise is a complex economic institution and the legitimate asset values attaching thereto cannot properly be reckoned in terms of brick and mortar or other physical characteristics. That assets should be reported conservatively is desirable, but taking this position does not preclude careful consideration of each type of outlay on the merits, in the light of the conditions prevailing in the particular situation. Organization costs properly incurred represent recognizable assets, as explained in Chapter XVIII. Similarly technical development costs—such as those represented in mining by road building, exploratory drilling, and stripping—are at the outset costs of property, chargeable to revenues in accordance with a reasonable policy of assignment. Costs of training personnel, organizing records, establishing improved methods of operation, developing new products, creating markets, etc. should also be spread over the revenues to which they contribute instead of being absorbed as incurred. However, it must be remembered that sound apportionment of some classes of costs is easier said than done, and as long as convincing methods of periodic assignment are lacking the practice of "charging off" as incurred may be expected to persist.

In endeavoring to determine the appropriate treatment of the particular cost certain general tests are found to be helpful. First, does the charge in question represent a genuine cost, an expenditure reasonably required under all the circumstances? If an affirmative answer is justified the charge cannot well be viewed as a loss although it may still be subject to current absorption. Second, does the charge represent a factor from which a future benefit or contribution can reasonably be anticipated? If an affirmative answer is again justified, all or a proper portion of the cost under consideration should be excluded from revenue charges and should be retained on the books as an asset value. Study of

the conditions of the original transaction, including intentions and expectations of the management, is likely to be helpful. Where costs are regularly recurring, it may be added, the presumption is in favor of treatment as charges to current operations, with proper adjustment for changes in balances.

There is a view widely held, and supported by some legal rulings, to the effect that no expenditure may be capitalized—deferred—unless an increase in the volume of business or decrease in operating charges may be expected to result from the outlay. This position is not tenable. No investment should be made unless conditions indicate that the enterprise will be benefited—will be better off than would be the case *if the expenditure were not incurred*. But this does not mean that proper capital expenditures are made only for the sake of increased net income. Often additional facilities must be acquired, or old facilities must be replaced with more costly units, in order to continue operations, although there is little or no prospect of either expanding revenue or reducing charges. Even if falling profits are expected capital expenditures may be justified if the situation would be still worse if the expenditures were not made. In working the lower levels of a mine, for example, it may be necessary to install equipment not needed at early stages of operation; and such equipment becomes a cost of production for the future—an element in an increasing level of expense which may not be accompanied by more output or higher prices.

Use of the expression “deferred charges” to designate clear-cut prepayments of rent, insurance, etc. need not be considered improper provided the balances covered are reported in the statement without ambiguity. Or if the term were restricted to capitalized development costs and related items not assignable to specific tangible assets there could be no serious objection to the usage. The practice of setting up such a heading as a label for a miscellany of current prepayments, security discounts, organization costs, etc., should be discouraged.

**Spreading Budgeted Costs.** In general, costs must be incurred before they may be charged to operations or to revenues, and costs which have been incurred may not be held in suspense (except in the form of inventoriable balances). Where monthly or quarterly income reports are issued, however, exceptions to this rule are sometimes recommended. Such a cost as advertising, for example, may be incurred (in the sense of expenditures made or liabilities recognized) very irregularly throughout the year, and if charges to operation are made upon this basis misleading variations in short-term results are likely to appear. In this situation it is not considered unreasonable to accrue costs in terms of annual or seasonal budgets through the use of an “equalization” reserve. Similarly the

practice of absorbing a portion of manufacturing overhead incurred in "subnormal" months in the charges of months in which operations are above the standard or budget level has some appeal from the standpoint of short-term reports.

The general procedure can be indicated by a simple illustration. The M Co.'s plans for a particular year call for spending \$1,000,000 for advertising of various types. The estimated sales for the same period are \$10,000,000. In other words, the budgeted advertising cost for the year is 10% of the anticipated sales. January advertising costs incurred total \$100,000, and January sales amount to \$700,000. In condensed form the entries covering advertising charges incurred for the month are:

Reserve for Advertising	\$100,000	
Liabilities (or other appropriate accounts)		\$100,000
To charge costs incurred in January to equalization reserve		

The entries required to charge January business with the advertising cost reasonably assignable to such business are:

Advertising Expense	\$70,000	
Reserve for Advertising		\$70,000
To accrue expense amounting to 10% of January sales		

The debit balance in the reserve on January 1 may be interpreted as a deferred charge—a cost incurred the effect of which is assumed to be applicable to the business of later months.

To vary the illustration assume conditions as before except that January costs incurred and sales amount to \$80,000 and \$1,000,000, respectively. The entries are:

(1)		
Reserve for Advertising	\$ 80,000	
Liabilities (or other appropriate accounts)		\$ 80,000
(2)		
Advertising Expense	100,000	
Reserve for Advertising		100,000

In these circumstances the reserve has a credit balance on January 31 of \$20,000, and the disposition of this balance in the statements is somewhat troublesome. It cannot be said to represent a definite liability, and it does not measure a decrease in asset values. To conclude that the reserve balance is true surplus, moreover, is equivalent to the admission that expenses have been overstated. Evidently there is no wholly satisfactory interpretation. The reserve account is a technical device designed to permit the assignment of costs irregularly incurred to short-term revenues in a reasonable way. Assuming that the budget figures approximate the actual for the year the temporary reserve balance will be absorbed and there will be no question of overstated expense and

hidden surplus at the end of the budget period. (See discussion of equalization reserves in Chapter XXVI.)

In apportioning budgeted costs each year or other budget period should be started with a clean slate. The year-end balance in the reserve, whether debit or credit, should be written off as an adjustment of cost for the entire period covered by the estimates. The annual charge, in other words, will be the actual cost, and will differ from the sum of the monthly charges by the amount necessary to close the reserve at the end of the year.

Another way of dealing with the problem of costs irregularly incurred during the year is to eliminate interim statements of net income and confine the short-term reports to amount of sales and amount of operating charges incurred, each classified as desired. This solution has much to commend it. The determination of net income on an annual basis is a process fraught with many difficulties, and there is serious question as to the desirability of encouraging the use of monthly or quarterly statements. A possible compromise procedure provides for the preparation of short-term income reports which are not modified by special methods of apportioning charges and which are clearly presented as unadjusted segments of the annual statement.

The difficulty noted above of finding a satisfactory interpretation in some situations for interim balances in equalization reserves suggests the questionable character of any procedure by which current revenues are charged with costs not yet incurred. Spreading advertising cost incurred in one month over later months may be justified on the ground that the effect of the expenditure is actually felt in such later periods. It is clear, on the other hand, that advertising services rendered in a particular month cannot possibly confer an actual benefit upon an earlier period.

**Long-Term Smoothing.** A sharp distinction should be drawn between a defensible scheme of spreading charges for the year in interim reports and any device or policy designed to eliminate or reduce the fluctuations in earnings that result from varying business fortunes over a period of years. The purpose of a method of apportionment such as that outlined in the preceding section is not to obscure business trends but to bring the monthly statements into harmony with implied conditions and relationships. This is a far cry from minimizing the effect of marked variations in the volume of business by means of arbitrary methods of recording maintenance and depreciation and of valuing the inventory. There are lean years and fat years in business operation, and it is the business of the accountant to disclose this condition clearly, not to cover it up. The standing and reputation of a business must be maintained by

performance, not by statistics. It is true that the year—an astronomical unit—is a somewhat arbitrary segment of the history of a continuing enterprise, but the remedy for this condition—as pointed out in Chapter I—is to supplement the annual statement by cumulative and average reports, not to issue “doctored” yearly exhibits. The tradition of annual reckonings has become firmly established, and as long as this condition obtains the accountant must endeavor to maintain the integrity of such reckonings.

**Anticipating Revenue Charges.** In ascertaining net income, under ideal procedure, revenues should be reduced by all applicable charges, including any that may be incurred in subsequent periods. For example, costs of billing customers, handling remittances, taking care of returns, etc. arising in connection with current sales may be incurred in part in the following period, and a precise accounting for income accordingly requires that the amount of such charges be estimated and currently applied. This may be done through the use of an appropriate reserve under a procedure similar to that employed in apportioning budgeted costs. Another case arises where equipment is sold with the express understanding that it is to be kept in good running order for a specified period without further charge. Still another example is found where land is sold with the understanding that the vendor shall take care of contemplated improvements such as installing water mains, building roads, and the like.

Under some circumstances an anticipated expenditure must be accrued over a period of some years. The estimated cost of removing and disposing of plant assets at the end of service life, as pointed out in Chapter XI, should be accrued through operating charges where such cost exceeds the anticipated salvage by a substantial amount. Another case is found where special improvements and changes have been made on leased property and the contract provides for restoration of the original conditions at the termination of the lease. The M Co., for example, leases a tract of land for ten years with the privilege of erecting thereon a number of structures which must, however, be dismantled and removed when the property reverts. The estimated net cost of this work is \$50,000. Under these circumstances a strong case can be made for an accrual of this anticipated expenditure throughout the term of the lease. Using “straight-line” procedure, and ignoring the problem raised by the fact that the improvements will require a period of time for completion, the entries for each year are:

Restoration Cost—Leased Property	.....	\$5,000
Reserve for Restoration Cost	.....	\$5,000

The reserve in this case can reasonably be interpreted as an estimated liability account in view of the specific obligation assumed. Accrual by a

compound-interest calculation would of course be more logical. If this plan were adopted the charge for the first year would be the amount which deposited annually at an appropriate rate of interest would accumulate to \$50,000 during the period of tenancy.

The income-tax authorities, in refusing to allow deductions of this character to be accrued for tax purposes, have taken an unreasonable position.

Costs which are purely contingent and for which experience gives no reasonable basis of estimation can hardly be provided for by current operating charges.

**Ranking of Costs.** In their basic relation to revenue all costs are homogeneous; expenses are not recovered through earnings in preferential order. If revenues total \$110,000, for example, and assignable costs amount to \$100,000, this means that each dollar of cost applied has produced (or is accompanied by) a revenue element of \$1.10—an increment of 10%. Similarly if revenues amount to only \$90,000 while expenses are \$100,000, this means that only 90% of each dollar of cost, regardless of classification, has been recouped. The costs in question must of course be properly reckoned and be truly assignable.

This proposition rests on the commonplace assumption that where two or more factors are essential to a given result no ranking is permissible that excludes any factor from consideration, or minimizes the effect of any factor. The amount or weight of the components may vary but each makes its proportionate contribution to the objective.

The point deserves emphasis, as there is much loose thinking and questionable action which flows from its neglect. The persistent overemphasis on the distinction between merchandise cost of sales and other revenue charges, discussed in Chapter I, is one illustration of the tendency to indulge in misleading ranking of charges. Another example is found in the widely held view that depreciation is a residual or optional expense. This is evidenced by such statements as "there is nothing to be gained by accruing depreciation if the result is an operating deficit," or "your company earned a net profit before depreciation of \$4,168,892.36." As explained in Chapter XI, depreciation is a typical cost of production, essentially on the same footing as labor and materials. Plant costs (congealed labor and materials) are "stocked" for a considerable time while labor and materials applied as such are purchased in large part in the year in which utilized, but it is just as necessary that a "stock" of plant be charged to operations during the period of its use as it is that a supply of raw materials be so charged.

**Differential Costs and Prices.** A special type of cost ranking is found in the tendency in some quarters to emphasize the importance of last

increments or differentials. Impressed with unutilized capacity and inelastic costs, management sometimes becomes convinced that the cost of additional business is restricted to the amount by which the total of operating charges will be expanded if such business is developed. In particular the view is common that plant costs which have been already incurred can be ignored in making bids and taking orders as long as existing facilities are not fully employed.

The problem here is somewhat akin to that found in the old story of the straw and the camel's back. Is the last straw to be held accountable for the result (unfortunate in the classic example) or is the entire load to be considered responsible? The better answer is that the last increment contributes no more to the total accomplishment than its fellow straws; it is decisive in that its arrival precipitates a crisis, but it exerts no greater pressure than any of the other associated factors. Similarly the five minutes spent in closing a sale, the culmination, perhaps, of many days of negotiation and effort, need be considered no more significant than any other similar segment of the total time involved. If this slant is applied to the general problem the conclusion is suggested that the last increment (or any special increment) of sales should be charged with that portion of total costs which seems appropriate when the revenues of the period are viewed as a whole, rather than with an estimated differential cost.

Without doubt there are periods when recorded costs cannot be recovered in full, even by the most efficient producer. In such times it may be good management to continue to produce and sell for the sake of holding the organization together and maintaining the concern's position in the industry. Complete cessation of operation is a perilous step in most lines, and is to be avoided as long as any hope of better conditions remains. But the minimum cost point is not measured by costs on a current cash basis, or by total costs less depreciation, or by costs less all overhead, or by any other calculation of this type. Usually the minimum point is simply the best price which the market situation will permit. As a short-run measure the management may find it desirable to accept almost any price—for an output sufficient to maintain a skeleton force—rather than to shut down altogether. Many a concern has found it expedient to consume a part of its net working capital during an acute recession in business activity.

This is not saying that a business can operate at any price. For the long-run a level of prices is required that will make it possible to cover all costs and make a net return, or offer a prospect of making a return, sufficient to attract adequate capital. There is in fact too much short-run thinking in business operation; greater emphasis on long-run policy would be a stabilizing influence. The management should keep its eye at

all times on total periodic cost, and average cost per unit, even if it becomes necessary for a time to sell at prices which fall far short of covering such cost.

Differential cost calculations may be useful in determining the program of production, in considering possible further uses for existing facilities, and in various other connections. But once a course has been settled upon the mistake should not be made of assuming that the costs of particular projects or sections of revenue do not include a share of all classes of charges representing factors essential to carrying on such projects or producing such revenues. No dollar of revenue, for example, can be singled out as free of depreciation cost provided plant facilities were essential to its appearance.

Marginal and differential costs may be the most influential charges from the standpoint of market-price determination, but it does not follow that such conceptions of cost deserve emphasis in the accounting of the particular enterprise. Cost to the specific producer, it must be remembered, may have little or no effect upon selling price. Only in the case of those concerns whose conditions represent the critical or focal points in the market situation are the price-making costs to be found, and such concerns are not easily identified and are a continuously changing group.

**Internal Division of Costs.** In departmentalizing costs the rule that no essential factor may be excluded from any assignment has many applications. One type of case in which this rule is not always fully observed is found in the handling of overhead on construction jobs consisting of the services of operating departments. In a particular year, for example, a part of the time of the engineering staff of an enterprise, regularly employed on operating activities, is devoted to designing an important plant addition and to supervising construction. The total cost of engineering services for the year is not increased and the regular duties of the department are fully attended to. In this situation it may be argued that no part of the cost of engineering should be charged to construction on the ground that the regular work of the department lies in the field of operation and that operating costs are not reduced because of the fact that in a particular period some service is rendered to construction. To exclude part of engineering cost from operation, it may also be urged, will result in a distortion of comparative operating data. This line of reasoning is not sound. Service is furnished in two directions and the cost thereof must be apportioned on a reasonable basis between the two activities. The fact that one line of employment is somewhat incidental does not justify any other conclusion. The desire to avoid fluctuations in comparative operating costs likewise does not warrant ignoring the conditions actually existing. The truth of the matter is that the use of en-



gineering services in construction without additional cost does reduce the engineering cost of operation, and if there is no other expansion of operating costs as a result the total of such charges is diminished.

By way of emphasis another example may be given. A particular enterprise in the public-utility field operates an electric department and a water department. Water pumped into the water treatment plant is employed en route in cooling equipment used in producing electric energy. The general manager (who wishes to show low costs of production in the electric department) holds that no part of the cost of pumping should be assigned to electric operating costs on the ground that the incidental use made of water by the other division does not increase in any way the necessary costs of the water department. Is this position defensible? Answer in the negative is clearly required; since the pumping station renders service to two departments the cost of operating the same must be equitably divided.

The requirement of equitable division is easily stated but the application is often difficult. To the extent that specific efforts are directed exclusively toward specific ends the assignment of charges to particular departments and sections of revenue is readily accomplished. In most enterprises, however, many of the factors of production are related to revenue in the periodic mass rather than to individual sales or classes of sales. Costs of buildings and other structures usually are associated with several operating departments; joint material costs are typical of such industries as meat packing and pharmaceutical manufacturing and appear in some degree in almost all lines; common service costs are found wherever plant and material factors are joint, and administrative services invariably apply—at least in part—to all classes of activities and revenues. In fact there is some justification for the opinion that common costs are more characteristic of modern business conditions than specific departmental costs.

Revenues from incidental products are sometimes disposed of as adjustments of the costs of main products. This treatment may be convenient but it cannot be defended otherwise. As stated earlier, both revenues and expenses should be reported in full, without cancellation. Moreover, the sound assumption is that some costs attach to every dollar of revenue; even subordinate revenues are not cost-free. Where an apportionment of charges to the various classes of sales is not practicable the best procedure is to report minor revenues as an addition to major revenues in finding a total to which all charges currently deductible are applicable.

Some cost accountants recommend the restriction of the departmentalizing of costs to those charges that would be completely avoided if the

activity were eliminated. This means that each class of revenue is charged only with the "inescapable" costs, and the difference between the revenue and the assigned costs then becomes the contribution of the department to the common costs of the enterprise and to operating net.

In the assignment of common costs to revenue departments, where this is deemed advisable, the most reasonable general approach is that of relative market values. To illustrate, if the sales of one class of product for a particular period total \$100,000 and the sales of another class for the same time total \$300,000 the common costs applicable to the combined sales of \$400,000 would be divided on a 25-75 basis.

**Treatment of Losses.** Elements of cost incurred that expire without compensation or return, in contrast to charges that represent costs of revenue, may be viewed as losses. In drawing the distinction in practice a rather broad conception of business operation should be adopted. Business is not carried on under ideal conditions. Particular units of labor service, critically considered, may contribute little or nothing to revenue. Are the corresponding items of wages to be picked out and dealt with as losses? Goods are carelessly packed and are returned by a customer, damaged. Are the resulting extra charges a loss or an expense? Maintenance costs are heavy because new men are handling the machines. Is the excess over "normal" a loss? In general the answer is that all such "losses" are chargeable to revenue as costs of operation, in the broad sense, as long as conditions are not altogether unreasonable in the light of ordinary standards of management. This does not deny the desirability of isolating items of the character indicated for purpose of analysis and control.

Payments not matched by goods or services received, but required by the general conditions—political, social, and legal as well as physical—under which a business concern must operate, might be defined as losses from the standpoint of another environment but can hardly be so interpreted as matters stand. No technical services are received to match donations to the "community fund," yet such expenditures may be required, in effect, by the existing social situation. Insurance costs would not be necessary if there were no danger of casualties. Taxes paid seldom correspond to specific benefits received, although no one questions the general usefulness of government. Broadly viewed, such charges represent costs of business operation just as truly as do the commonplace expenditures for labor and materials. (Taxes based upon income are usually handled as a coerced distribution of net earnings rather than as either expense or loss.)

How shall true losses—deductions which cannot be viewed as revenue charges—be reported? The answer to this question must vary with the

circumstances. If the loss is definitely applicable to the current period, although not assignable to gross revenue, it may be treated as a deduction from net income as otherwise determined. For example, the estimated damage to a tract of timber resulting from a hurricane can be viewed as chargeable to income for the year in which the loss is suffered. If the loss has clearly "accrued" in whole or in part in earlier periods, although realized currently, all or a part of the amount thereof is logically assignable to earned surplus. Examples are a loss on sale of property which declined in value before the period of sale, additional taxes assessed on income of previous periods, and payment of disputed royalties on sales of past years. In such a situation absorption in earned-surplus account cannot be considered improper provided the situation is clearly disclosed in the income statement.

During the period of organization and construction, before revenues have appeared, losses are chargeable to proprietary capital. Improper treatment of such losses, however, is very common. Even among supposedly conservative accountants the view seems to be common that if no income or surplus is available from which a loss may be deducted it is impossible to recognize the loss, except perhaps as a deferred charge to future operations. This amounts to a denial of the possibility of a loss of capital during the preliminary period and is not good doctrine. Actually asset values are just as susceptible to shrinkage while the concern is getting under way as at any later time. Where expenditures are made as a result of bona-fide transactions, the management of organization and construction is reasonably intelligent, and attendant conditions are not unusually unfavorable, the presumption is that capital is unimpaired. Where, on the other hand, costs of organization services or plant are excessive as a result of fraud, gross inefficiency, or extraordinary casualties, sound accounting requires an immediate recognition of the loss as either a direct charge to the capital account or an offset to such account.

Setting up genuine losses as deferred charges followed by absorption through revenues of later periods is definitely objectionable on two counts. At the outset asset totals are padded and the proprietary equity is correspondingly overstated. The practice results, moreover, in inflation of charges and understatement of net in the period or periods in which the deferred charge is amortized. The only proper treatment is complete disposition as indicated above in the period in which the loss occurs or becomes clearly recognizable. It is the function of accounting to show as fully and intelligibly as possible the course of the business and its actual condition, and efforts to "soften" the effects of unfortunate events are decidedly out of place.

As a rule realized losses are "allowable deductions" for income-tax purposes.

**Unrealized Losses.** The term "unrealized loss" is commonly used to designate the estimated decline in the value of merchandise, securities, land, and other assets held by the enterprise, particularly where due to price changes or other conditions not directly connected with operation. Regular accruals of depreciation, depletion, and amortization are usually considered to be "realized" charges.

Some hold that unrealized loss, like appreciation, need not be explicitly recognized in the accounts. On the ground of conservatism, however, many accountants are more than willing to countenance revision of values downward in certain circumstances. The familiar rule that inventories should be valued at "cost or market, whichever is lower," is often defended on the score that while unrealized gain should not be booked all losses, unrealized as well as realized, must be taken into consideration in preparing the periodic picture of operation. The usual treatment, indeed, results in the inclusion of the element of loss in cost of sales. (See Chapter VI.) In the case of marketable securities, where the strongest case for revaluation is found, the rules of the Bureau of Internal Revenue permit no write-offs of unrealized loss for tax purposes unless utter worthlessness can be established (except in the situation of the dealer who uses market values in taking inventory), and this attitude is echoed quite generally by accountants. Actually a fall in the price of marketable securities held by an investment trust, for example, represents a clear-cut loss, whether recognized or not. If a concern owns 1,000 shares of stock purchased at \$50 per share and the unquestioned market value falls to \$25 a loss of \$25,000 has been suffered, and any report that shows to the contrary is incomplete if not misleading. A recovery in a later period, moreover, does not, literally, "wipe out" such loss; the real situation is that a loss appeared in one period and a gain materialized in another. A possible compromise treatment is to show all unrealized losses and gains attaching to securities held, and clearly evidenced by market prices, as supplementary data.

For land and other fixed assets decline in value is a matter of estimate, and varies with particular purposes and interpretations. From the standpoint of immediate liquidation, for example, the estimated value of fixed property may be quite different from the amount which represents value to the going concern. (See discussion of plant write-downs in Chapter XIV.)

Not infrequently the term "loss" is loosely applied to anticipated earnings that have failed to materialize as a result of some unfortunate

occurrence or condition. A common example is the loss of possible revenue due to crop failure. It is hardly necessary to say that no loss can be booked, as either realized or unrealized, which does not represent the expiration of some value which was or should have been set up as an asset or cost actually incurred. Thus the actual loss from the destruction of a growing crop is limited to the costs incurred to date of loss.

**Treatment of Interest Charges.** Are interest charges accruing on borrowed capital expenses or assignments of net income? The answer evidently depends upon the fundamental point of view adopted. Looked at through the eyes of the proprietary equity interest appears as a deduction congruous with labor, materials, and other costs of operation; from this position interest represents a payment for a definite service—the use of the capital contributed by bondholders and other contractual investors. From the managerial standpoint, on the other hand, the operating costs of the business entity are not affected by the form of capitalization—the particular devices employed to secure the necessary funds. To the manager the bondholders' dollars, like those furnished by stockholders, become amalgamated in the body of resources subject to his administration, and the net income of the enterprise consists of the entire amount available for assignment to all classes of investors. According to this position interest charges should be excluded from expenses and should be grouped with dividends as income distributions.

The issue is not of great importance in those concerns, small or large, in which interest charges are confined to the accruals on a short-term debt of relatively small amount, varying with seasonal needs. Where, on the other hand, a major portion of the total capital employed is furnished by long-term creditors, inclusion of interest with operating deductions is an unsatisfactory treatment, likely to prove misleading. In a utility enterprise, for example, with a total funded debt of \$300,000,000, representing 60% of the capital structure, and bearing interest at an average rate of 4%, reporting interest as an operating expense is equivalent to stating that the enterprise has no earning power except as the return to investors exceeds \$12,000,000 per annum. Or in a municipal undertaking with a capital structure consisting entirely of borrowed money, to mention a more extreme case, treatment of interest as expense prevents the enterprise from showing a net income until earnings reach a level above that which provides a return on *all* funds invested. It is not surprising that in standard forms of reports prescribed for railways and other utilities by regulating bodies interest on funded debt is classed as a charge against income rather than as a cost of gross revenue.

Treating interest as expense is undesirable from the standpoint of comparison of operating results between enterprises. For example, assume

that M Co. and R Co. are precisely alike in every respect but that the funds of the former are represented by common stock amounting to \$2,000,000 while the capital of the latter consists of stock of \$1,000,000 and a like amount of 5% mortgage bonds. In this situation charging interest of \$50,000 to expense results in reducing the reported operating net of R Co. to a level under that of the M Co., although by assumption both concerns have the same earning power. If, however, interest is excluded from expenses the operating figures for the two companies are placed on the same footing and there is no danger of misinterpretation. Comparisons between periods within the single concern likewise may be distorted by including interest in cost of revenue. The S Co., for example, has an issue of \$1,000,000 of 6% bonds which are convertible into common stock, and in a particular year the conversion privilege is exercised by all bondholders. As a result of this transaction the interest charge disappears and is replaced by dividends as such are declared. The practice of reporting interest as an expense under these circumstances would bring about an apparent increase in annual net income following the conversion, although it should be manifest that the exchange of bonds for stock does not affect the earning power of the enterprise.

The importance of the strict proprietary point of view decreases with the complexity of the capital structure. Where both common and preferred stock issues are outstanding the dominant equity is usually that represented by common stock, the residual element. And to the common shareholders the dividends declared on the preferred issue are a deduction, like bond interest, which must be taken into account in ascertaining the net income applicable to the common shares. No one has suggested, however, that dividends on preferred stock should be included in operating expenses.

The well-constructed income statement, as pointed out in Chapter I, takes account of both the proprietary and managerial interpretations of interest charges by showing a net operating balance before interest and a net proprietary balance after prior deductions from income.

Taking the position that interest charges are a distribution of net rather than a deduction from gross does not require the conclusion that interest earnings are invariably to be construed as a net item of non-operating income. It may be expedient to handle incidental interest income in this way, notwithstanding the fact that a small amount of expense is presumably associated with such income. Where the amount is relatively large, on the other hand, its character as operating revenue should be recognized. In banks and other financial institutions interest earned is a major element of the revenue stream.

**Interest Charges and Selling Price.** Mention should be made of the common but mistaken impression that concerns which make use of borrowed capital, and are therefore faced with an interest burden, are placed at a disadvantage in price-making as compared with competitors who are financed entirely by proprietary investment. A specific example is found in the advertising some years ago of an automobile company (now defunct) in which it was claimed that the company could sell a better product at a lower price because it had no bonded indebtedness and therefore no interest charges to meet. In general, a return on proprietary capital is just as necessary an element in price as is interest on borrowed funds. It has been argued by some economists that the cost of capital to the community is reduced by the specialization evidenced in the development of senior securities of various kinds. As far as the particular enterprise is concerned the most reasonable conclusion is that the form of capital structure employed has no bearing on cost of production or selling prices.

These comments should not be interpreted as support for the use of bonds and similar securities in financing. Where a part of the capital is borrowed the proprietary equity—and the enterprise as a going concern—is subjected to a risk which it may or may not be wise to assume. But there seems to be no substantial basis for the view that using borrowed funds makes it necessary to charge higher prices for the product.

**Business Expense versus Price-Influencing Cost.** Failure to apprehend clearly the contrast between the revenue charges or expenses of the business enterprise and the price-influencing cost of the economist is undoubtedly at the bottom of certain long-standing debates in the field of income accounting. It needs to be emphasized that the accountant's immediate focus of attention is represented by the transactions and affairs of a specific business organization, and that the conceptions and classifications of data employed are those suited to the conditions and needs of the owners and managers of the particular enterprise. Thus "cost" in accounting consists of costs in labor, materials, etc. actually incurred by the enterprise, as evidenced by the contracts with the furnishers of the necessary factors and the records of goods and services received. The economist attempting to analyze the forces of which normal market prices are compounded, on the other hand, is concerned with the entire area of the market, including the attitudes and activities of all buyers and sellers involved. To him price-influencing cost is made up of all the factors conditioning the supply side, including necessary interest and profits.

Should the conception of business expense be enlarged to bring it into closer agreement with the economist's conception of normal supply

price? Although a considerable number of accountants have found this proposition appealing a negative answer seems to be clearly justified. It is essential to any scheme of income accounting that net income be defined as a difference, a balance, obtained by comparing expenses and revenues. And the point at which deductions leave off and net income begins is surely that which separates the factors acquired—purchased—by the business enterprise from persons or concerns external to itself and the intrinsic contribution of the enterprise in its own right. No doubt the peculiar service of the business—in furnishing and coordinating capital resources in the form of enterprise operation—is just as truly an economic cost, a cost for which compensation may ordinarily be exacted, as are the acquired factors; but such service is a cost to the customer—not to the business. In fact if all price-influencing types of cost were included in recorded operating expense the net income would be restricted to differential or excess profits, and concerns receiving no more than the necessary compensation for their efforts would have no net income whatever to report.

It is true that the conception of a definite business enterprise, furnishing a definite service in the process of operation, is somewhat artificial, particularly outside the corporate field. In the sole-proprietorship the owner himself, in his business capacity, is doubtless the significant entity, and the situation is similar in the case of the partnership. The service rendered by personal owners also has a somewhat broader character than that contributed by the incorporated enterprise. Nevertheless the distinction emphasized above is of fundamental significance under all forms of business organization and can usually be realistically applied without serious difficulty.

There is also some misunderstanding with respect to the relation of the expense accounts of the specific enterprise to the price-making policy of the management. Selling price cannot usually be fixed merely by adding a fair return for capital contributed and responsibility assumed to the unit costs based on the data accumulated by the accountant. Prices are determined by a multiplicity of influences acting over an entire market area, particularly in the case of standard goods produced under competitive conditions, and cost to the specific concern is very likely not to be a major influence. As pointed out in another connection, the management may find it necessary to dispose of its product for a considerable period at prices that do not cover actual cost, to say nothing of a net return.

This does not mean that a knowledge of costs is not desirable. Expense accounting is an essential phase of periodic income determination, and classified expense data are invaluable as bases for managerial judgment in numerous connections. Cost figures, moreover, are necessary



in formulating intelligent opinion with respect to selling prices, even if their influence is not decisive.

**Estimated Interest as a Cost.** Advocates of the inclusion in operating expense of estimated interest on all capital employed in the business usually rest their case on two main propositions, as follows: (1) interest is a true cost of production and must therefore be deducted in computing net profits; (2) recognition of the interest factor is essential in making comparisons and formulating sound judgments with respect to operations.

The first proposition is defended primarily by reference to economic theory. All economists agree, it is pointed out, that pure interest—the cost of “capital as capital”—is a price-influencing cost of production. Attention is also called to the bad logic of treating interest on borrowed capital as an expense while neglecting implicit interest on proprietary investment. To the management, it is urged, the use of capital is a cost, regardless of its source.

The answer to the first line of argument is based on the view (outlined earlier) that it is the function of accounting to show expenses from the standpoint of the particular business entity, without reference to their influence on market prices. Business concerns, most of which are not continuously at the critical juncture of market forces, are interested only in actual costs to them, not in the theoretical cost effectively associated with the prevailing price. Inclusion in expense of any element of return on capital would therefore be confusing and would tend to prevent disclosure of actual earnings. The reward for the services of ownership and ultimate management, moreover, does not appear in effective form until validated by revenues realized in excess of expenses incurred, and accruing such reward prior to such validation is an extreme example of the recognition of unrealized income. In other words, if imputed interest on capital is taken into account as are labor and material costs, a correspondingly artificial adjustment of income is necessary to avoid downright misstatement, and the whole procedure has no *net* effect upon the income report. Is it not wiser to determine a net operating result from the point of view of revenues realized and costs explicitly incurred by the enterprise, and then, if desired, prepare a supplementary analysis in which demonstrated net return is divided into the various economic shares which are assumed to be involved?

It may be granted that inclusion of interest on borrowed funds in operating expense, with no acknowledgment of the effect of the use of proprietary capital, is questionable procedure. But the possibility remains of excluding all interest from operating charges, as recommended earlier.

The second proposition has been supported by a number of writers in considerable detail and with a variety of illustrative applications. It is contended that in comparing and choosing between particular machines, processes, departments, plants, and enterprises it is essential that the interest factor be considered, and that systematic accrual of interest in regular cost accounts is the only satisfactory way of dealing with the situation. The point involved may be made clear by a simple example. In manufacturing a particular product the M Co. employs two alternative processes, with unit costs, exclusive of interest, as follows:

	<i>Process A</i>	<i>Process B</i>
Direct materials . . . . .	\$10.00	\$10.00
Direct labor . . . . .	5.00	6.00
Applicable overhead . . . . .	4.00	3.15
	<u>\$19.00</u>	<u>\$19.15</u>

On the basis of this compilation process A appears to be the more efficient method. Assume, however, that if interest on the capital invested is calculated the amount per unit is 60 cents and 40 cents for processes A and B, respectively. If these figures are included in comparative costs it appears that process B has a slight advantage as a means of utilizing the resources of the enterprise for the production of the product in question.

This line of argument is the heart of the case for interest inclusion, from a practical standpoint, but it does not settle the matter. One may admit the need for consideration of respective capital investments required in making comparisons without accepting the view that it is necessary to accrue estimated interest on the books as a continuous feature of the cost accounting. Comparisons of this type become critical only when it is feasible to consider changes, not from day to day. And when a question of this character is before the management the special analysis and report which must be made in any event is not greatly facilitated by a cost system in which hypothetical interest charges have been systematically compiled. Introduction of interest into overhead costs in detail, moreover, is a task fraught with difficulties and gives rise to added clerical expense. It may also be pointed out that for situations in which it is feasible to assign revenues to the processes under consideration comparisons of the kind indicated can be made without interpreting interest as a cost by determining which process yields the higher rate of return on the capital employed.

**Estimating Interest—Underlying Problems.** Further light can be thrown on the proposal to treat estimated interest as an actual expense by an examination of the underlying problems involved in attempting to

give it effect. One matter which must be dealt with at the outset is that of the interest rate to be employed. Should the current rate of "pure interest," without allowance for risk-taking and other entrepreneurial functions, be accepted, or the more conventional rate attaching to ordinary long-term loans? Does the rate paid by the company on contractual securities outstanding, or the rate implicit in the market value of such securities, have a bearing? Should an effort be made to find the price-influencing cost of capital, including necessary profit, in the particular industry or market area? These and similar questions must be faced and a satisfactory decision, appropriate to the conditions of the particular enterprise, is not easily reached. To be consistent with the definition of interest commonly employed by the economist the rate should be that obtainable on capital where the risk element is minimized, as in the case of first-class government securities. If stress is laid on the theory that all price-influencing factors must be treated as costs the use of a rate that includes marginal profits is indicated—a rate represented by the earning power of the enterprise critically located in the price-making process. From a practical standpoint there is much to be said for the rate that the particular business would have to pay in raising new capital either through the use of debenture notes or bonds or preference stock issues. Any rate selected will need adjustment from period to period in conformity with the changing market for the use of capital under various conditions.

Having found a suitable rate the next step is the determination of the total capital base. Conceding that the source of the capital has no bearing there remain a number of embarrassing questions at this point. Should cost, cost less depreciation, net market value, or some other basis be used in computing the capital fund? What consideration should be given to idle plant, or to other fixed assets not actively in use? Should capital consisting of cash in bank, accounts receivable, marketable securities, and other assets not *physically* associated with production be included? Should adjustment be made for funds represented by accounts payable and other liabilities not explicitly entitled to share in income? Advocates of interest recognition commonly recommend cost, or cost less depreciation, as the proper basis of valuation, although this is somewhat inconsistent with the application of a current market rate of interest. Accrued depreciation must be deducted, for otherwise converted funds will continue to be counted in their original form. (The problem here is allied to the question of the deductibility of depreciation in rate cases.) Interest on capital represented by fixed property entirely out of use for a considerable period can hardly be construed as a cost of production, but it must be borne in mind that not all property is continuously em-

ployed to 100 per cent of capacity, and that reasonable reserves of particular types of resources should not be ruled out. In other words, a broad interpretation of what represents adequate plant facilities—an interpretation in keeping with the typical or standard situation rather than the ideal—is required. The same attitude should be adopted with respect to inventories. Similarly, such assets as cash and accounts receivable, despite their lack of direct connection with the technical processes of production, are essential to business operation, in reasonable amount, and the capital embodied in resources of this character is just as effectively employed as that represented in factory building, for example. This conclusion need not be modified, moreover, because of the presence of accounts payable and related liabilities, although it should not be forgotten that the prices paid for goods and services acquired on account, without an acknowledged element of interest, may be assumed to include a charge for the capital furnished by the creditor.

To make the system at all useful for the purposes of internal administration the total capital base must be spread over the various cost units—operations, processes, machines, production centers, or departments—in an equitable manner. In general this is even more difficult to accomplish than the apportionment of conventional elements of overhead. Particularly troublesome is the division of working capital between production (in the technical sense) and distribution, and the assignment of appropriate amounts to the various cost units under each main head. Lacking a better method, the total capital employed may be spread by making direct allocations in terms of observable and unquestioned relations and spreading the balance in proportion to such direct assignments. An alternative, more or less arbitrary, is to spread the employed capital (or the derived periodic interest charge) in proportion to the orthodox operating costs as allocated.

**Estimated Interest—Illustration.** An artificial example will serve as a means of outlining the entries which would be required if hypothetical interest were included in recorded costs. For the first year of operation the average capital employed by the M Co. is found to be \$11,500,000 and the rate selected as indicating the effective cost of using capital is 6%. The total of interest so estimated, \$690,000, is reduced by \$90,000, the estimated implicit interest on capital furnished by current creditors assumed to be included in operating charges. This estimate of implicit interest is determined by applying a rate of 6% to the average amount of current liabilities outstanding through the year, \$1,500,000—liabilities carrying no explicit interest. Of the balance, \$600,000, the amount of \$500,000 is assigned to manufacturing costs (including charges to stores) and the amount of \$100,000 to distribution costs, and these amounts are

appropriately spread over the subsidiary operating accounts under each main classification. Sales total \$15,000,000, and conventional costs charged to manufacturing (including stores) and to distribution amount to \$13,000,000 and \$2,600,000, respectively. Ending inventories of materials, work in process, and finished stock, based on conventional costs, are \$550,000, \$550,000, and \$460,000, respectively, and the corresponding estimated interest charges applicable are \$10,000, \$24,000, and \$26,000. For the sake of simplicity no deferred charges under the head of distribution cost are assumed. The average funded debt for the year is \$2,000,000, carrying a rate of  $5\frac{1}{2}\%$ . Under these circumstances, and assuming that it is desired to permit the effect of the estimated interest charge to be reflected in operating net, the following scheme of entries is appropriate:

(1)		
Manufacturing Costs, and Stores (in detail) . . .	\$13,000,000	
Distribution Costs (in detail) . . . . .	2,600,000	
Liabilities, etc. . . . .		\$15,600,000
To record ordinary costs charged to operations		

(2)		
Accounts Receivable (also subsidiary accounts) . . .	15,000,000	
Sales (departmentalized, if desired) . . . . .		15,000,000
To record sales		

(3)		
Interest Chargeable to Operations . . . . .	690,000	
Reserve for Estimated Interest . . . . .		690,000
To record total estimated interest charge		
Reserve for Estimated Interest . . . . .	90,000	
Interest Chargeable to Operations . . . . .		90,000
To adjust total estimated charge by amount of 6% on average capital represented by current liabilities bearing no explicit interest, the cost of which is already included in operating charges		

(4)		
Manufacturing Costs, and Stores (in detail) . . .	500,000	
Distribution Costs (in detail) . . . . .	100,000	
Interest Chargeable to Operations . . . . .		600,000
To record apportionment of estimated interest		

(5)		
Work in Process (in detail) . . . . .	12,940,000	
Manufacturing Costs, and Stores (in detail) . . .		12,940,000
To accumulate record of work in process, including all charges other than stores inventory of \$560,000		

(6)		
Finished Stock (in detail) . . . . .	12,366,000	
Work in Process (in detail) . . . . .		12,366,000
To accumulate cost of work completed, leaving inventory of work in process of \$574,000		

(7)		
Manufacturing Cost of Sales (departmentalized, if desired)	11,880,000	
Finished Stock (in detail)		11,880,000
To recognize cost of stock consigned as cost of sales, leaving inventory of finished goods at \$486,000		
(8)		
Expense and Revenue	14,580,000	
Manufacturing Cost of Sales		11,880,000
Distribution Costs		2,700,000
To close costs applicable to revenues to operating summary		
(9)		
Sales	15,000,000	
Expense and Revenue		15,000,000
To close sales to operating summary		
(10)		
Expense and Revenue	420,000	
Income		420,000
To close operating balance to income account		
(11)		
Bond Interest Charges	110,000	
Bond Interest Accrued		110,000
To record accrual of contractual bond interest charges through the year		
(12)		
Income	110,000	
Bond Interest Charges		110,000
To absorb contractual interest charges		
(13)		
Reserve for Estimated Interest	540,000	
Income		540,000
To close interest reserve, except for amount of \$60,000 applicable to inventories, to income		

This treatment emphasizes an operating net of \$420,000 and a final corrected net, after deduction of bond interest, of \$850,000. If estimated interest were not brought into the picture, all other data remaining unchanged, the operating net would be \$960,000 (\$420,000 plus interest of \$540,000 included in cost of sales), and the net after interest on bonds would again be \$850,000. By making an adjustment crediting manufacturing cost of sales with the amount of \$440,000 (interest included less amount applicable to inventories) and distribution costs with \$100,000, the total being charged to reserve for interest, it would evidently be possible to include estimated interest in operating accounts in any desired degree of detail and at the same time show the expense and revenue summary and income account on the more conventional, and sounder, basis.

The balance in the inventory reserve account of \$60,000 should be

reported as a contra to the inventory balances, which include a write-up of \$60,000 in the form of unrealized interest on investment.

Deducting estimated implicit interest on funds represented by liabilities carrying no explicit interest from the total estimated cost of capital employed recognizes that such implicit interest is distributed to manufacturing and distribution, and to the detail supporting accounts, in terms of ordinary operating charges.

The illustration should make it clear that when purely hypothetical charges are introduced into the accounts it is necessary to offset such charges, when they reach the income sheet, by an equal amount of hypothetical earnings, in order to avoid a downright misstatement. Here is the essential weakness of the entire scheme. In the guise of recognizing cost it brings into the accounts an estimated and entirely unrealized increment. Whatever may be the merit of including interest in detailed cost computations, for internal administrative purposes, it seems reasonable to conclude that interest in the general income statement should be confined to interest paid or accrued on borrowed funds, and that such interest should be reported as a contractual distribution of income rather than as a cost of revenue.

**Segregation of Implicit Interest.** The foregoing discussion has raised the question of implicit interest—interest actually paid or received but not expressed as such in the terms of the contract. It seems fair to assume that such interest is present in all cases where money, goods, or services are received or furnished prior to collection or payment of the stipulated amount. Thus implicit interest is involved in purchases and sales on account, transactions giving rise to time bills and drafts, transactions with employees, insurance contracts, leaseholds, and numerous other situations in which interest is ordinarily not explicitly provided for. Implicit interest is likewise found in interest-bearing contracts where the rate provided is more or less than the market rate at the date the arrangement becomes effective. (See discussion of bonds issued at a discount or premium in Chapter XXVII of this book and of non-interest-bearing paper in Chapter XXIII of *Essentials of Accounting*.)

With respect to short-term contracts it may be unwise for the accountant to attempt to isolate implicit interest systematically in the accounts, but it is desirable that the phenomenon be understood and the limitations of the conventional treatment recognized. An indication of the way in which segregation might be accomplished should be helpful in this connection. For an example assume that the M Co. in the first year of operation buys merchandise on account at net invoice prices amounting to \$1,200,000 and sells goods on account at net prices totaling \$1,800,000. Payments on account total \$1,100,000 and collections are \$1,500,000.

On the average both payables and receivables are liquidated in thirty days. The balances outstanding at the end of the year have been on the books on the average for a period of fifteen days. There are no bad debts, returns, or other special adjustments. In this situation each dollar paid on account may be assumed to include implicit interest at a rate of discount per annum, say, of 6%, amounting to  $\frac{1}{2}$  cent; in other words, each dollar of apparent merchandise cost consists of interest,  $\frac{1}{2}$  cent, and actual cost of goods, 99 $\frac{1}{2}$  cents. Similarly, each dollar collected from customers may be assumed to include interest on capital advanced in the amount of  $\frac{1}{2}$  cent, which means that an element of interest earned is buried in the sales account. The adjusting entries necessary to segregate this implicit interest included in the actual payments and receipts are as follows:

(1)			
Implicit Interest on Accounts Payable . . . . .	\$5,500		
Merchandise Cost . . . . .		\$5,500	
(2)			
Sales . . . . .	7,500		
Implicit Interest on Accounts Receivable . . . . .			7,500

Accrued implicit interest is also represented in the outstanding balances. Such balances, moreover, have a discounted value due to the fact that they do not mature, on the average, for one-half month. To put the entire adjustment on an accrual basis the following additional entries are therefore necessary:

(1)			
Implicit Interest on Accounts Payable . . . . .	\$250		
Merchandise Cost . . . . .		\$250	
To accrue interest on balance of accounts payable for average period outstanding			
(2)			
Accounts Payable—Discount . . . . .	250		
Merchandise Cost . . . . .			250
To offset recorded amount of accounts payable outstanding by interest to average maturity date			
(3)			
Sales . . . . .	750		
Implicit Interest on Accounts Receivable . . . . .			750
To accrue implicit interest on balance for average period outstanding			
(4)			
Sales . . . . .	750		
Accounts Receivable—Discount . . . . .			750
To offset recorded balance by implicit interest included which has not yet accrued			

These entries complete the isolation of implicit interest through adjustment of merchandise cost and sales, and provide for a showing of



outstanding balances at current rather than maturity values. In the following period the special accounts offsetting accounts payable and accounts receivable would be closed into implicit interest charged and credited, respectively.

The discounting method of computation is used in the illustration for convenience. Applying the stated rate to maturity value results in increasing the rate in terms of the true original principal.

It should be understood that the treatment of receivables and payables just outlined is quite distinct from the introduction into the accounts of interest on capital which is not validated by payment or receipt or by specific contractual relationships. Recognizing implicit interest as shown above consists essentially of an analysis and reclassification of *actual* charges and credits for the purpose of segregating the interest element from the costs and revenues in which it has been buried. The procedure also involves showing balances of receivables and payables at discounted values. Neither should this analysis be confused with the interpretation of cash discounts allowed on gross invoice prices for prompt payment, although a small interest factor is no doubt involved in such discounts. In the illustration but one set of effective prices is assumed for payables and receivables, with thirty days allowed for payment or collection.

As has been indicated, the practical value of isolating implicit interest in short-term contracts may not be sufficient to justify regular adjustments of this character, but occasional computations designed to disclose the interest factor involved in particular credit policies are helpful in passing judgment on such policies.

**Illustration of Implicit Interest on Long-Term Contracts.** For an example of implicit interest on a long-term contract assume that the M Co. at the beginning of its first year of operation leases a piece of land for twenty years and pays \$114,700 in advance in lieu of making annual payments of \$10,000. With these conditions a 6% annual rate is involved. The company, in other words, makes an investment in a leasehold amounting to the present value at 6% of a series of twenty annual deposits of \$10,000 each. In these circumstances how should the leasehold be amortized on the M Co.'s books? The usual treatment consists of writing the amount advanced into operating costs over the term of the contract with no acknowledgment of the presence of the interest factor. This gives correct net results but does not reflect, it may be argued, the essential conditions of expense and income; recorded costs are reduced by the amount of implicit interest earned on the investment. The following entries show the full annual rent expense and the interest implicitly earned under the terms of the contract for the first two years:

(1)		
Rent Cost	\$10,000.00	
Implicit Interest on Leasehold		\$6,882.00
Leasehold		3,118.00
(2)		
Rent Cost	10,000.00	
Implicit Interest on Leasehold		6,694.92
Leasehold		3,305.08

The interest for each period is calculated by applying the implicit rate to the balance of the leasehold account, beginning with the full cost the first year. The amount of amortization is the difference between the annual rent cost of \$10,000 and the interest. If the interest "earned" were each year credited to the gross rent "cost" the result would evidently be an amortization of the advance payment by the compound-interest method.

It may be urged that since the total payment made during the life of the lease is only \$114,700 there is no warrant for charging operation with rentals amounting to \$200,000. From the standpoint of accounting tradition this objection has force. Nevertheless the fact that the payment is made in advance, for a twenty-year period, and as an alternative to undertaking an annual payment of \$10,000, lends support to the treatment suggested. Needless to say there is no excuse for attempting to recognize interest charged or earned on the books for such situations except where such interest is definitely implied by the precise terms of the contract. (See discussion of the interest methods of apportioning depreciation in Chapter XII.)

**Proprietary Salaries.** The case for including in operating charges reasonable allowances for the personal services furnished by the owner or owners, whether or not such allowances are actually paid or drawn, is somewhat stronger than that calling for recognition of estimated interest on funds invested as a cost, primarily because the distinction between personal services on the one hand and the use of capital on the other is more clear and significant than the line separating interest, one element of capital return, from "pure profit," another and closely related component of such return. The conditions of business organization and activity, in other words, tend to justify the treatment of personal services utilized as costs of operation, although these same conditions make it difficult to define net revenue otherwise than in terms of the entire amount earned on the capital invested.

In the corporation, the dominant form of enterprise, most of the services used, even where furnished by persons who are stockholders, are secured on the basis of definite contracts, between parties independent in the eyes of the law, and payment therefor is regularly made at stipu-

lated rates. In the partnership, which is not recognized as a separate legal entity, salaries allowed to partners are validated in a measure by agreements between the firm members. (See discussion of partners' salaries in Chapter XXXI of *Essentials of Accounting*.) In the single-proprietorship, however, it is rather artificial to conceive of the "business" as acquiring the services of the owner, and it may be confusing rather than helpful to charge the imputed cost of such services to operation.

The proprietor of a small store, for example, is not working for a salary, but is engaged in a business undertaking on his own account from which he hopes to make a return that is adequate in view of his entire contribution—services as well as capital. In a particular period the return actually realized may fail to represent a reasonable compensation for the capital employed, to say nothing of managerial and other services rendered, and in this event the anticipation of the estimated value of any part of the owner's contribution as a cost incurred, even if supported by actual drawings, clearly has the effect of padding operating costs. Moreover, in many single-proprietorships the services furnished are a much greater factor in revenue than the capital employed, and here a definition of operating net that includes the compensation for proprietary services may be more realistic and useful than any alternative conception. The net operating income of an architect, for example, means very little if confined to a return on the capital invested in drawing instruments and other incidental assets. A minor objection to a regular booking of an estimated proprietary salary as a cost is the resulting tendency on the part of the owner to draw the amount of such charge in cash without regard to the condition of the enterprise. The principal advantage of the single-proprietorship over other forms of organization is the elasticity and freedom from red tape afforded, and this advantage tends to be lost to the extent that artificial arrangements between the proprietor and the enterprise are introduced and taken seriously. In general the owner should draw funds when outside needs and possibilities of use outweigh business needs, without regard to the estimated value of personal services rendered.

A statistical record of the estimated value of the personal services furnished by the proprietor can be introduced into the accounts, if desired, without distortion of essential balances by charging a salary account and crediting the owner's current or drawing account with the amount of the regular monthly estimate, the entries later being reversed. If a salary charge is closed into operating expense it is evident that an understatement of net proprietary income will result unless an offsetting credit to "salary earned" is introduced. The difficulty is not really

avoided, as is sometimes assumed, by crediting a special "liability" account, to which an equal amount of cash drawn is charged. The income report is certainly not correct if it fails to show the entire amount of income available to the proprietor as a result of all activities.

In comparing operating results by departments, especially where the owners' services vary in their application, an estimated proprietary salary should be appropriately spread or otherwise taken into consideration. If desired, however, this may be done in periodic reporting without introducing the estimated charge into the ledger accounts.

**Imputed Rent.** The proposal that concerns owning their own buildings and other facilities should charge operations with an estimated rental, the same amount being credited to "income from property owned," although never widely urged or adopted, is interesting as an extreme illustration of the general impropriety of attempting to introduce hypothetical costs and earnings into the accounts. It is objectionable, in the first place, in that its acceptance would involve duplicating in whole or in part, under the guise of rent, the actual costs of using plant assets in the form of depreciation, maintenance, insurance, and taxes. This means that to avoid downright overstatement of expense and revenue it would be necessary to close all such costs for which the rent charge were substituted from the regular cost accounts, and reduce the fictitious item of rent income accordingly. This done the entire procedure, in the normal situation, would simmer down to a padding of operating cost and income by a sum presumably approximating interest on investment in the facilities under consideration. In other words, the proposal amounts to nothing more than a very awkward and roundabout way of introducing an estimated interest cost and income covering that part of the capital tied up in assets which might conceivably be secured through lease rather than purchase.

It may be objected, further, that there is no good reason for setting up rented property as the standard "yardstick" to which owners of property must endeavor to make their accounts and reports conform. It would be just as proper to urge that those renting fixed assets should substitute for their actual rent costs estimates of depreciation, maintenance, insurance, and taxes, as these costs would appear if the leased properties were owned outright.

This does not mean that the actual expenses arising in connection with a building owned, for example, may not be drawn together for the general purpose of cost classification or for the specific purpose of facilitating comparison of actual and possible or prospective costs.

It is no doubt true that in making comparisons of the operating data of different concerns for the purposes of trade associations, valuation,

and in other connections the many variations in cost and revenue classifications are embarrassing and must be taken into consideration if improper conclusions are to be avoided. The solution, however, does not lie in accounts and reports for the individual concerns which create apparent uniformity where actual and important operating and financial differences exist. What is needed rather are reports that make the peculiarities of each situation entirely clear so that the person making the comparisons is in a position intelligently to interpret the available data and adapt them to his needs.

### QUESTIONS

1. What are the three main tasks of the accountant with respect to costs? Which of the three is the most difficult and critical? Explain.
2. "Expenditure is not a proper test of expense; utilization in production is the decisive criterion." Do you agree? Illustrate.
3. Into what two main pools may operating charges be grouped? In which case is it more difficult to develop satisfactory methods of assignment to revenue?
4. With illustrations contrast "matching" and "cancellation."
5. "No cost incurred should be treated as a deferred charge to revenue unless it represents a definite increase in physical assets." Is this sound? What is the proper rule?
6. Is it feasible to defer such charges as cost of training personnel and developing records and procedures?
7. "No cost element may be capitalized unless it represents a means of either lowering expenses or increasing gross revenues." Do you agree?
8. With an illustration show how yearly cost budgets may be spread over interim periods. How should balances in "equalization" reserves be interpreted?
9. "Reasonable apportionment of seasonal or yearly budgets of costs results in preserving and clarifying true relationships; use of statistical and accounting devices to 'stabilize' reported income through the course of the business cycle tends to obscure and distort the periodic picture." Discuss.
10. Illustrate the need which may arise to book expenses not yet incurred in the strict sense.
11. "In their basic relation to assets and revenues all costs properly incurred are homogeneous, rank abreast." Explain.
12. Do the costs added as a result of the last increment of business to the total otherwise incurred represent the expenses assignable to the revenue represented by such last increment?
13. "The customer is willing to pay a price which will cover the cost in labor and materials but he may be unwilling to take care of depreciation and other overhead charges, particularly in periods of business recession." Discuss.
14. Under what conditions may a management find it advisable to sell product temporarily on a basis which involves a drain on working capital?
15. With an illustration show the impropriety of assigning common cost factors on a preferential basis.
16. Contrast losses and expenses. What have normal standards of operation to do with this matter? Is a donation to the Red Cross a loss?
17. How should genuine losses arising prior to the advent of revenues be accounted

for? Is it proper to spread an unusual loss recognized in a particular year over the revenues of several succeeding periods?

18. Give illustrations of "unrealized" loss. Should such losses be reported in the income statements?

19. Outline the argument in support of reporting interest charges as a distribution of net income rather than a cost of gross.

20. Does the use of borrowed money make it necessary to charge higher prices?

21. Contrast the expense of the specific concern with price-influencing cost in a given market area. Argue that in the price-influencing sense even profit is a cost of operation.

22. Outline the argument for and against the inclusion of estimated interest on capital employed in recorded costs.

23. In estimating the interest cost of capital employed how is the rate to be determined? The amount of capital? Discuss the departmentalization of estimated interest burden.

24. With an illustration show how "implicit" interest actually incurred might be segregated in the accounts.

25. Would the charging of an estimated owner's salary to operation make the accounts and statements of the single-proprietorship more significant and useful to the owner? To the manager?

26. "If the proprietor owns his store building he should include an estimated rent in his operating costs." Discuss.

## XXII

### CAPITAL STOCK

**Corporate Organization.** As a preliminary to a consideration of the accounting for capital stock in its various aspects a few comments on organization procedure are in order. Promoting and launching a business corporation, particularly a large enterprise, is commonly a task requiring a considerable amount of time and effort and involving a great deal of red tape. The first step is that of planning the undertaking, which may consist of establishing an entirely new business, incorporating and developing a proprietorship or partnership, merging two or more existing companies, or merely modifying the form of a single corporation already in operation. The promoters and other parties interested meet and agree on a basis upon which to proceed. The amount and character of the authorized capital is determined, the state of incorporation is selected, the methods to be employed in raising capital are decided upon, bylaws are drawn up, and other necessary matters are considered and settled, at least provisionally. In addition, applications for a considerable amount of stock may be secured in advance of actual incorporation, and officers may be tentatively selected.

The second main step is that of incorporation, which is taken care of by the incorporators and their legal advisers. The details of procedure vary somewhat from state to state but the main features are very similar in most jurisdictions. Articles of incorporation must be prepared in proper form and approved by the appropriate state officers. The articles, together with the provisions of the statute, constitute in effect the charter of the corporation, giving it being and defining its powers; and with the filing of the articles the corporate existence may be said to begin. Under the general corporation act in Michigan, for example, one or more persons, natural or corporate, may act to incorporate the ordinary industrial or trading company. (There are special provisions for banks, public utilities, etc.) The articles must be filed in triplicate with the Corporation and Securities Commission and must state: (1) name of corporation; (2) purpose for which formed; (3) location and post-office address of registered corporate office in the state; (4) statement of authorized stock, including number of shares, par value or in the case of no-par

stock the price fixed for sale, facts as to preferences, and any other pertinent data; (5) names and residential or business addresses of incorporators, and number and class of shares subscribed for by each; (6) names and addresses of members of first board of directors; (7) term of the corporate existence.

Following incorporation, and election or confirming of directors and officers, the corporation is legally ready to do business. Often much remains to be done, however, before active operation can be launched. It may still be necessary to raise a major part of the capital, acquire or construct the necessary plant facilities and other assets, organize a staff of employees, and establish contacts with customers.

**Phases of Capital Stock.** Broadly defined capital stock is the entire equity of the shareholders in so far as subject to legal recognition and transferability. It first appears in the guise of the formal *authorized capital*, expressed in number of shares and par or stated value. The authorized capital stock represents the maximum number of shares that can be issued without—as a rule—formal amendment of the articles and bylaws. It represents the nominal, legal capitalization. *Stock outstanding*, the most significant phase for accounting purposes, is represented by the shares that have been duly issued and remain in the hands of the company's members or shareholders. Often the amount outstanding—for a considerable period if not permanently—is much less than the total authorization. The difference between authorized stock and the outstanding shares at any time, evidently, is the *unissued stock*. Two kinds of unissued stock are usually recognized: (1) shares that have never been outstanding; (2) shares once issued that have been acquired by the corporation by purchase, donation, call, or in some other manner and have been retained, without formal cancellation, as *treasury stock*. *Capital stock subscribed*—authorized stock for which subscriptions have been received—may be viewed as another phase of capital standing midway between authorized and outstanding stock. The nature of subscribed stock from an accounting standpoint is somewhat debatable.

The status of capital stock outstanding may be modified by stock discount or premium, conversion privileges, and various types of warrants and rights. The status of capital stock is also affected by the accumulation of profits or the incurring of losses. These complicating factors are discussed in following chapters.

**Par-Value Stock.** "The authorized capital of the company is \$100,000, divided into 1,000 shares with a par value of \$100 each" illustrates the usual description for a corporate capital stated in terms of dollars as well as number of shares. Par-value stock is the traditional form and is still very widely employed. The design lying back of the use of par



value, no doubt, is the creation of a definite capital fund through the contributions of stockholders for the purpose of carrying on the operations of the business and, in particular, for the protection of the corporate creditors. This is reflected in the numerous state statutes which prohibit the issue of par-value stock at a discount.

Unfortunately the significance of par value has been minimized by the development of the practice of issuing stock for property other than cash at nominal and often greatly overstated values, and the continued failure of the courts to take a firm stand in situations of this kind coming to their attention in bankruptcies and other connections. In a Michigan public-utility case, for example, it was clearly shown that stock with a par value of \$2,000,000 had been issued in exchange for franchises which cost not in excess of \$25,000 and had no demonstrated market value, but the court refused to adopt the theory that the stockholders were assessable for the benefit of bondholders and other creditors. In the face of this condition it is not surprising that some accountants have suggested that par value should not be greatly emphasized in corporate reports and statistics.

Even where the stock is issued at not less than par value the amount of par has comparatively little meaning for the stockholder in later periods. The value in which the stockholder is primarily interested is the current amount of his equity, and due to the effects of operation and other conditions this amount is likely to bear little relation to par. On the other hand, where there is more than one class of stock the recorded amount of the senior issue may remain unchanged at par value, and par may have an added significance here as the measure of a prior claim to assets in the event of liquidation and dissolution.

**No-Par Stock.** In recent years the use of stock without par value has been widely legalized, and many issues of such stock have been emitted. From the standpoint of corporate administration and accounting this development is intrinsically unobjectionable and in fact has commendable features. Authorized capital can be conveniently dealt with in terms of number of shares without reference to dollars. Omission of dollars in no way complicates the routine handling of stockholders' accounts. Dividends can be more conveniently and significantly expressed in dollars and cents per share than as a percentage of par value. Moreover, since statutory stressing of par value has not prevented stock-watering and the emphasis on par value in financial statements has often been more misleading than helpful, the expanding use of stocks having no formal value need not be viewed as out of line with the general campaign for higher standards in corporate organization and financing.

On the other hand it must be admitted that abuses have developed

with the use of stocks without par value which seem to outweigh any advantages derived. This unfortunate condition is not due to the nature of the device itself but may largely be charged to the unsatisfactory statutes adopted by most states. Instead of accepting the rational view that the capital of a concern financed with no-par stock is automatically fixed by the amount actually paid in by the stockholders, in cash or equivalent, the various acts in general authorize the issuing corporation to "state" or "declare" as capital any desired portion of the amount received, subject in some cases to the limitation that the credit to capital account shall not be less than a prescribed minimum value. In other words, no-par stock has become in effect an elastic "low-par" stock, with the ridiculous result that corporations just beginning operations are permitted to report a large or major portion of their actual capital as surplus, legally available for dividend appropriations, and companies which have been in business for some time and wish to improve their position with respect to surplus are offered an easy way of reaching this goal through recapitalization in the form of reduction of stated values. For example, under the present Michigan act—which is generally viewed as a conservative and carefully constructed piece of legislation—a corporation employing stock without par value is allowed to include in surplus account any amount up to fifty per cent of the proceeds from stock issued.

Both no-par and par-value stocks are sometimes represented in the capitalization of a single corporation. The common practice in such cases is to restrict the use of par value to senior or preference issues.

**Common Stock—Rights of Stockholders.** A majority of corporations issue but one homogeneous class of stock. Such stock, unless there is specific arrangement to the contrary, carries the right to vote at stockholders' meetings, the right to participate in all dividend appropriations, and the right to acquire a proportionate part of any new stock offering made by the company. In general each share has one vote. Stock once fully outstanding, moreover, is the unrestricted property of the stockholder and can be transferred to any other party without the consent of the corporation.

In a strict sense there can be no "common" stock except in the presence of a senior issue. Common stock, that is, is stock enjoying no special rights or privileges, as compared with issues that do. It is customary, however, to view the stock of companies having but a single issue as common stock.

Some corporations make use of two classes of so-called common stock, usually designated as class A and class B issues. Class A stock often has no voting right, or a restricted vote, but usually has some preference with respect to dividends and proceeds of liquidation, and is thus essenti-

ally a type of preferred stock. Class B stock, the "management" issue, usually represents the controlling voice in the affairs of the corporation, although in some cases the equity in the assets attaching to such stock is of negligible amount. Giving a particular block of common stock special rights in effect creates a preferred issue. This practice, now seldom found, is illustrated by the issue of favored shares to the incorporators as "founders' stock."

On the other hand use of special labels does not create preferences where only one class of stock is outstanding. Thus the stock of the Great Northern Railway Co. is "preferred" in name only.

**Preferred Stock.** A senior stock issue is found in many corporations, and occasionally two or more classes of preferred stock are employed by a single company. There is no standard type. In general any stock to which one or more preferences or special rights attach, as compared with the status of another class of stock of the same company, is a preferred issue. Preferred stocks range from those issues having priority in a single respect, and which may not differ markedly from the accompanying common stock, to those that are so highly safeguarded as to render them closely similar to certain kinds of bond issues. In at least one case preferred stock was issued secured by a first mortgage on real estate. So-called "debenture stock" is essentially a long-term liability.

Priority with respect to dividends, at a stipulated rate, is almost universally accorded to a preferred stock. This does not mean that periodic dividends are assured; if no current profit or accumulated profits are available—such is the general rule—dividends cannot legally be declared on any class of stock. Further, the directors are not deemed to be bound to declare the regular preferred dividend in whole or in part even in the presence of net earnings provided their best judgment indicates that there are no funds available, in view of the legitimate needs of the business, from which to make the disbursement. If the right to receive the specified annual dividend is cumulative, however, the total amount of preferred dividends in arrears at any time must be met before any dividends may be declared upon the common stock. There is also some support for the view that even where the stock is not cumulative in the strict sense the claim to dividends accumulates to the extent of applicable earnings. Interest does not accrue on preferred dividend arrearages. Occasionally preferred stock has participating rights in income. For example, an issue may have priority with respect to the amount of \$6 per share and share-for-share participation with the common stock in distributions in excess of \$6 per share on both classes. Or the participation may be restricted to a specified number of dollars per annum in excess of the regular rate.

Most issues of preferred stock rank above the common stock with respect to the distribution of the proceeds from liquidation. If the issue has a par value such value usually expresses the extent of the prior claim on assets. In the case of no-par preferred stock the amount of the equity in liquidation should be expressly stated in the agreement covering the issue. Dividends in arrears do not constitute a claim on capital in distribution unless there is provision to this effect. Participation in residual assets in accordance with participating rights in income is a possibility. Preferred stock also frequently has the benefit of protective clauses which restrict the management in connection with borrowing, plant expansion, common dividends, etc. Occasionally the contract provides for gradual retirement of the preferred stock through sinking-fund operations. The redemption or call price usually includes a premium. Preferred stock may have special subscription rights and conversion privileges.

The major control of corporate activity is usually vested in the common stock. This is brought about either through the issue of a smaller number of preferred shares or by restricting the voting power of the preferred. In some cases the preferred stock carries no vote; in others preferred voting is limited to special questions or is permitted only under unusual financial conditions.

Complexity of capital structure through the use of several classes of stock, with special restrictions and privileges attached, should not be encouraged. A single issue of cumulative preferred stock, with regular voting power and no fine-spun features, accompanied by a clear-cut issue of residual common stock, should satisfy all legitimate needs. It is probably true that some specialization of securities is necessary to attract the capital of investors of varying inclinations and purses, but there is reason to believe that the elaboration sometimes indulged in is not justified. Often the underlying explanation of the form of capitalization employed is the desire on the part of the promoters to control a large enterprise without making any considerable investment—hardly a sound basis on which to build a capital structure.

**Recording Stock Subscriptions and Issues.** The M Co., for example, is organized with an authorized capital stock all of the same class of \$100,000, consisting of 10,000 shares with a par value of \$10 each. The incorporators, M, R, and S, subscribe for 1,000 shares each at par, and at this stage articles are prepared and filed and the corporation is legally launched. The subscriptions of M, R, and S are collected in full, and the certificates are issued. Subscriptions are received from various parties for 7,000 shares at par, and are later collected in full. Stock certificates are issued to the appropriate parties for 7,000 shares. In

undated, condensed form, but with transactions with the incorporators segregated, the necessary entries are as follows:

(1)		
Subscriptions (also specific accounts)	\$30,000	
Capital Stock Subscribed		\$30,000
To record subscriptions of M, R, and S, for 1,000 shares each		

(2)		
Cash	30,000	
Subscriptions (also specific accounts)		30,000
To record collection of subscriptions of M, R, and S		

(3)		
Capital Stock Subscribed	30,000	
Capital Stock Outstanding (also specific accounts)		30,000
To record issue of certificates to M, R, and S for 1,000 shares each		

(4)		
Subscriptions (also specific accounts)	70,000	
Capital Stock Subscribed (details)		70,000

(5)		
Cash	70,000	
Subscriptions (also specific accounts) (details)		70,000

(6)		
Capital Stock Subscribed	70,000	
Capital Stock Outstanding (also specific accounts) (details)		70,000

This scheme of entries emphasizes three distinct steps as subject to record: (1) taking of the subscription; (2) collection of the subscription; (3) issue of the stock certificate. The recognition of the first step in the accounts assumes that a bona-fide subscription for stock—a written agreement under which the subscriber promises to pay a stated amount on a definite date or dates for a specified number of shares—represents an actual asset to the corporation and should be recorded as such. It also assumes that stock subscribed but not issued is a recordable equity—an intermediate, temporary phase of the proprietary interest. On the basis of these assumptions the second step becomes a matter-of-fact collection of a receivable, and the entries for the third serve to close the provisional equity account and open the account with stock outstanding. The special advantage of this treatment lies in the control of subscriptions thereby established. The subscriptions account summarizes the individual accounts of subscribers just as the accounts receivable of the general ledger controls the customers' ledger. Capital stock outstanding is likewise a controlling account, supported by the records of the holdings

of specific stockholders, but the intermediate account with capital stock subscribed requires no subdivision. If the number of subscribers is very small the controlling accounts may of course be dispensed with.

Where no-par stock is involved and the subscription price is the same as the stated value per share the pattern of the preliminary entries conforms precisely to that employed where par-value stock is subscribed and issued at par.

If subscriptions are paid in property other than cash, and there is no question as to the value of the property received, the entries covering subscriptions and the issue of stock follow the outline shown in the example except that the charges to cash are replaced by charges to the appropriate property account or accounts.

**Presentation of Stock Subscriptions.** Some accountants have suggested that for balance-sheet purposes the balance of the subscriptions account should be deducted from capital stock subscribed—even if the amount be assumed to be fully collectible. This suggestion is based on the view that stock subscriptions, representing capital in the process of being raised, are not true receivables such as arise where goods or services are furnished on account—a view not altogether unreasonable. On the other hand stock subscriptions are legally valid claims and in so far as the subscribers are responsible parties they will be collected without difficulty in accordance with the terms. All agree that if unpaid subscriptions are reported as an asset, rather than as a contra to capital stock subscribed, the amount should be clearly labeled and should not be combined with ordinary receivables.

The suggestion that capital stock subscribed is a corporate liability which is discharged when the certificates are issued has little merit. Issuing stock to cover subscriptions represents no expenditure of funds except to the extent of the cost of printing, preparing, and delivering certificates. The account with stock subscribed can reasonably be interpreted as the equity of the "stockholders-in-process" in cash already collected and the balance of subscriptions receivable.

**Subscription Installments and Defaults.** Where stock subscriptions are taken on the installment plan the entries recording collections become correspondingly detailed. The M Co., for example, accepts subscriptions on January 15 for 1,000 shares of stock at \$100 each. The subscriptions are accompanied by a down payment of 10%, and the agreement provides for payment of the balance in three equal monthly installments, the first of which is due on February 15. Assuming that subscriptions are collected in full on the due dates and that the certificates are issued on April 20, the necessary general-ledger entries are:

January 15			
Subscriptions		\$100,000	
Capital Stock Subscribed	. . . . .		\$100,000
Cash	. . . . .	10,000	
Subscriptions	. . . . .		10,000
February 15			
Cash	. . . . .	30,000	
Subscriptions	. . . . .		30,000
March 15 and April 15 (Same as on February 15)			
April 20			
Capital Stock Subscribed	. . . . .	100,000	
Capital Stock Outstanding	. . . . .		100,000

In these entries the total amount subscribed is passed through the subscriptions account, although it would of course be possible to charge cash directly for the amount of the down payment.

A variation in treatment consists of opening a series of installment accounts in lieu of, or in addition to, the general subscriptions account, for the purpose of securing separate control of each installment and to emphasize amounts currently receivable, past due, etc. in making reports. However, if the underlying cards or sheets are properly ruled all necessary data can be made readily available without elaboration of general-ledger accounts.

To illustrate the treatment of defaults assume conditions as above except that on Y's subscription for ten shares no collections are made after the down payment and the subscription is considered canceled. The entries necessary to give effect to the default and cancellation on the books are:

Capital Stock Subscribed	. . . . .	\$1,000	
Subscriptions (and Y's account)	. . . . .		\$900
Capital Surplus (or more specific title)	. . . . .		100

This assumes that the initial deposit is not recoverable by Y, an assumption which might be questioned in some circumstances from a strict legal standpoint. (In some jurisdictions the law affords considerable protection to a buyer on the installment plan, regardless of the terms of the specific agreement.) The Company in this situation might reasonably issue one share of stock to Y, canceling the balance of his subscription, in which case no item of surplus would appear.

Ideally, surplus from forfeited deposits on subscriptions should be charged with an appropriate part of the costs assignable to the taking of subscriptions. The nature of capital surplus is considered in the next chapter.

In sales of stock to employees and customers on the installment plan,

where the period involved is likely to cover a year or more, interest is sometimes charged on unpaid balances and the subscribers' accounts are credited with an amount matching the dividends—if any—declared on outstanding stock. If the effect of such an arrangement is to reduce the total amount paid in by the subscriber below the original amount agreed upon it is reasonable to interpret the net result as a revision of the subscription agreement. Under this view the amount received determines the amount of capital paid in and there is no loss to the corporation. Similarly if the effect is to increase the amount received above the stated subscription price the entire transaction is preferably treated as a capital-raising operation, which means that any sum collected in excess of par or stated values becomes an element of capital surplus rather than a profit.

**Treatment of Unissued Stock.** Some accountants advise beginning the accounting for capital stock with recognition of capital authorized rather than capital subscribed. Applying this suggestion to the first example given above, and combining transactions with incorporators and others, results in the following skeleton entries:

(1)			
Unissued Capital Stock	.	.	\$100,000
Capital Stock Authorized	.	.	\$100,000
(2)			
Subscriptions	.	.	100,000
Capital Stock Subscribed	.	.	100,000
(3)			
Cash	.	.	100,000
Subscriptions	.	.	100,000
(4)			
Capital Stock Subscribed	.	.	100,000
Unissued Capital Stock	.	.	100,000

In addition entries necessary to close capital stock authorized to capital stock outstanding might be made if this were deemed desirable.

Under this procedure the initial memorandum entries are mutually offsetting, and no harm is done if this is understood. Unissued stock represents a means by which resources may be obtained but it is not a recognizable asset; to hold otherwise would be equivalent to contending that the company has as much property before the capital has been raised as it has after the stock has been sold—manifestly an absurd proposition. It follows that any balance in the account with unissued stock should either be excluded from the balance sheet or should be reported as a contra to authorized stock. To illustrate, assume in the example that although the entire amount of stock authorized is booked subscriptions are limited to those of the incorporators, and that 7,000 shares remain unissued. The appropriate presentation is:



Capital Stock:	
Authorized—10,000 shares, par value \$10 each . . . . .	\$100,000
Unissued—7,000 shares . . . . .	70,000
	<hr/>
Outstanding—3,000 shares . . . . .	\$ 30,000

In the case of no-par stock the undesirability of recognizing unissued stock in the ledger is made quite apparent by the absence of a formal capital value.

**Stock Options.** A corporation may enter into an agreement which grants a particular party the right to purchase stock for a specified period at a stated price. This arrangement differs from the stock subscription in that it binds only the corporation; the prospective stockholder may or may not exercise the option. On the company's books, accordingly, the granting of the option requires no formal entries unless there is some consideration. If a payment is made for the option the corporation must of course recognize the amount received as an asset. The corresponding credit may well be interpreted as having the significance of a payment on a stock subscription. Presumably the amount paid for the option plus the stated price constitutes a fair subscription price for the stock. The making of the payment, moreover, indicates that the holder expects to exercise his right to purchase. Assume, for example, that M pays the M Co. \$1,000 for a thirty-day option on 1,000 shares of no-par common stock at \$14 per share, exclusive of cost of option. Later M pays for the stock as provided in the agreement and the stock is issued. The condensed entries on the Company's books are:

(1)	
Cash	\$ 1,000
Deposit on Stock Option—M . . . . .	\$ 1,000
(2)	
Cash	14,000
Deposit on Stock Option—M . . . . .	1,000
Capital Stock . . . . .	15,000

It was recommended earlier in the chapter that the account offsetting stock subscriptions or funds paid in on subscription contracts, capital stock subscribed, be viewed as a temporary proprietary account. This is likewise the most reasonable interpretation of the account "deposit on stock option." There is no liability involved, as the corporation is not required to return the deposit if M fails to exercise his right to buy stock. If M completes the purchase the deposit has clearly taken on the character of proprietary investment; if the option is allowed to lapse the amount of the deposit is forfeited to the corporation and becomes a form of capital surplus.

In balance-sheet presentation the amount of stock optioned should be indicated on the face of the statement or by footnote.

Options to purchase stock on favorable terms are sometimes granted to officers or other employees as a form of compensation for personal services rendered to the company. The proper treatment for such a case conforms to the procedure outlined above. Appropriate cost accounts should be charged with the fair market value of the services received and a corresponding amount should be credited to advances on stock options. When the options are exercised the amount advanced should be included in the purchase price and credited to capital stock. If the rights to purchase are allowed to lapse the amount advanced is transferable to capital surplus. It should be emphasized that there is no reduction of operating costs incurred because of failure on the part of employees to complete the purchase of the stock; neither can the amount forfeited on a stock purchase contract reasonably be treated as current income.

Conceivably a company might favor a particular individual by giving him an opportunity to buy stock at an especially low price even though the individual made no contribution whatever to the corporation. Such an arrangement, however, would be inequitable and improper from the point of view of other stockholders or subscribers.

The use of pro-rata stock rights in connection with the raising of capital is considered in Chapter XXIV.

**Stock Certificates.** Ownership of shares in a corporation is evidenced by stock certificates. These are formal documents serially numbered which show the name of the company and the state in which incorporated, the amount and character of the authorized capital, the number of shares owned, the name of the registered holder, a certifying statement of ownership with the rights and conditions accorded, date of purchase or transfer, and signatures of proper officers and transfer agent. If the stock is "fully paid and nonassessable" this fact should appear on the certificate, and if it is assessable the paid-in value should be clearly shown. The corporate seal must be affixed. Where the agreement with the stockholders contains numerous special provisions and is therefore lengthy, as is often true of preferred stock, the details are printed on the reverse side and are referred to in the certifying statement on the face. On the back of the certificate is also provided a form to be used in assigning the certificate for the purpose of sale, deposit as collateral, etc.

In small corporations blank stock certificates are acquired in books of 100 sheets or more, bound in somewhat the same form as large check-books. Each blank certificate is attached to a stub correspondingly numbered on which all essential data are written before the certificate is detached. In the case of a transfer the information on the stub should include name of transferor and his certificate number. Canceled certifi-

cates are usually pasted to their respective stubs, which means that the open stubs should check with the amount of stock outstanding.

The rules of the New York Stock Exchange require strict supervision of the printing of certificates of listed securities. Standardized certificates are required, with distinctive colors for different classes and denominations. To be valid certificates must be countersigned by the transfer agent and registered by the registrar, both of whom must have been regularly appointed and have the approval of the listing committee of the Exchange. The transfer agent may or may not be an employee of the company, but the corporation is not permitted to act as its own registrar.

In the case of large companies, with the number of stockholders running into the thousands and numerous transfers occurring from day to day, the work of issuing and recording the original certificates and taking care of transfers is a formidable task and requires highly developed forms and procedures.

Temporary certificates are sometimes issued which are replaced when the regular forms become available. Where stock is deposited in a voting trust special trust certificates, substantially equivalent to a formal receipt, are issued to the individual holders. Warrants and rights (see Chapter XXIV) are evidenced by documents somewhat similar to stock certificates. A certificate for a fraction of a share does not represent voting power or a right to participate in dividends.

**Capital Stock Records.** The forms and records peculiar to the corporation arise primarily in the accounting for the stockholders' equity. In handling subscriptions, to begin with, special journal and ledger rulings are often employed. The following suggests the character of a simple subscriptions journal:

Date	Subscriber	Address	Details	Folio	Subscriptions	Capital Stock Subscribed

In posting this journal the total of the subscriptions column is charged to the controlling subscriptions account and the corresponding footing of the stock subscribed column is credited to capital stock subscribed. This

Similarly a separate journal is a convenience in recording the original issue of capital stock. The following is illustrative:

Date	Stockholder	Address	Memo	Folio	Capital Stock Subscribed	Capital Stock Outstanding

If some stock is issued immediately for cash a cash column should be included in the stock journal. In some cases supplementary columns for discount or premium are needed. Posting to the individual accounts of the stock ledger may be accomplished directly from certificate stubs or special sheets rather than from a columnar journal. The following indicates the nature of the sheet or card required for the underlying stockholders' accounts:

[illegible]

For stocks with par value the accounts of the stock ledger can be conveniently kept in terms of par and number of shares. In the case of non-par stock the account may be kept in number of shares alone or in number of shares and stated or declared capital value. In general it is desirable to use the stated value per share as shown by the main capital stock account in the stock ledger, to facilitate clerical control. If there is no declared value per share the average paid-in value may be applied to the stockholders' accounts. Use of varying values for the different accounts, corresponding to varying amounts paid in for successive blocks issued, is not satisfactory from a clerical standpoint and ignores the fact that all shares of a particular class are identical with respect to dividend rights and other characteristics.

[illegible]

An important supplementary corporate record is that containing the minutes of meetings of officers and directors.

## QUESTIONS

1. What are the three main steps into which the work of launching a corporate enterprise may be divided?
2. Define authorized capital, stock subscribed, stock outstanding, unissued stock, treasury stock.
3. What is meant by "par value" of capital stock? Discuss the origin and use of par-value stocks.
4. What is the implicit advantage of stock without par value? Why has this advantage not, in general, been realized?
5. What is meant by common stock? List the fundamental rights of the stockholder.
6. Define "preferred" stock. What are the principal preferences?
7. "To attract the capital of investors of various inclinations and purses it is generally desirable for a corporation to issue several classes of senior or preference shares." Discuss.
8. With illustrative entries outline the three main steps involved in the issuing of par-value stock at par. Repeat for no-par stock subscribed at stated values.
9. Outline the accounting for stock subscriptions collected on the installment plan.
10. Illustrate the treatment of a defaulted subscription, assuming the amount paid in prior to default is forfeited by the subscriber. Is the capital surplus created by default a net item?
11. The M Co. takes subscriptions from employees for 500 shares of unissued capital stock at \$100 per share. The agreement provides for the payment of \$10 per share down and \$5 per month for eighteen months with interest on unpaid balances at the rate of 4% per annum. With illustrative entries outline the accounting for this situation on the M Co.'s books.
12. Should unissued stock be given recognition in the accounts? If so, how should such stock be reported in the balance sheet?
13. Discuss the treatment of stock options on the corporation's books: (1) when a consideration is received by the company; (2) when there is no consideration. Assuming options are granted to employees as compensation for services rendered, and are not exercised, what entries are required on the company's books?
14. Describe the typical stock certificate.
15. Explain the character of the principal forms used in connection with the recording of capital stock. Under what circumstances may it be desirable for a corporation to employ a special agent to keep the stock records?
16. How should the stock ledger be handled in the case of no-par stock issued at varying prices over a period of time and for which no formal stated value has been determined?

## XXIII

### STOCK DISCOUNT AND CAPITAL SURPLUS

**Issue of Stock at Discount.** In some jurisdictions stock may be legally "sold" by the corporation at a discount, and issue of stock when less than par has been paid in is usually not considered improper if it is understood that the balance will be collected later. Issuing at a discount may arise from mere lack of marketability at par, or it may reflect the fact that the entire amount of capital is not needed in the early stages of the venture. Formerly many mining companies issued partly paid stock with the expectation of calling all or a portion of the balance in as required for development. Certificates issued under such circumstances must show the amount paid in as well as par value. In law the stockholders are liable for the amount of recognized discount and can be assessed by action of the board of directors or, in insolvency proceedings, by the court. This rule follows from the doctrine that in the case of stocks with par value the legal capital is represented by the amount of par.

A not unreasonable method of recording stock issued at a discount, and of which instances have been found in practice, consists of crediting the capital stock account with the amount paid in and ignoring par. The R Co., for example, issues 10,000 shares of stock, par value \$10 each, at \$8 per share. The summarized entries are:

Cash	Capital Stock—Amount Paid In . . . . .	\$80,000
		\$80,000

Later a pro-rata assessment of \$10 per share is collected. The entries under this method are:

Cash	Capital Stock—Amount Paid In . . . . .	\$10,000
		\$10,000

It is almost universal practice, however, to show par value explicitly in the accounts and where stock is issued at a discount this requires the use of a special offsetting account. Applying this treatment to the issue of R Co. stock the entries become:

Cash	Capital Stock—Discount . . . . .	\$80,000
		20,000
	Capital Stock—Par . . . . .	\$100,000

The amount of the assessment collected is then credited to the modifying account, thus:

Cash		
Capital Stock—Discount	\$10,000	\$10,000

In recording subscriptions for stock at less than par the subscriber's account should be charged with the amount collectible, not par value. If desired the par value may be recognized at once in the stock subscribed account, with an accompanying offset, or the discount may be recorded when the stock is issued and the temporary equity account closed. The following scheme of entries illustrates the former treatment:

(1)		
Subscriptions	\$80,000	
Capital Stock Subscribed—Discount	20,000	
Capital Stock Subscribed—Par		\$100,000

(2)		
Cash	80,000	
Subscriptions		80,000

(3)		
Capital Stock Subscribed—Par	100,000	
Capital Stock Outstanding—Discount	20,000	
Capital Stock Outstanding—Par		100,000
Capital Stock Subscribed—Discount		20,000

With respect to stock-ledger procedure it should be observed that the individual shareholder's account may very well be maintained in terms of par value, whatever the issue price, assuming that the amount of discount (or premium) is uniformly applicable.

**Presentation and Interpretation of Discount.** In the balance sheet stock discount should be presented as a contra to par value, as shown by the following:

Capital Stock:	
Par Value	\$100,000
Discount	10,000
	<hr/>
Amount Paid In	\$90,000

This method of display satisfies the tradition to the effect that par value must be reported and shows clearly the actual amount paid in by the shareholders. The mistake is sometimes made of reporting discount as a deferred charge on the asset side (or, worse, burying the amount under some definite asset caption). Stock discount is always an offset to a nominal equity value, never a true resource. To treat the item of discount as actual property is tantamount to assuming that asset values must be present in an amount sufficient to validate par—an assumption which denies the existence of discount, the phenomenon under consideration. This conclusion is not altered by the fact that discount is a type of



contingent receivable. Even stock subscriptions, as noted earlier, have a somewhat dubious asset status, notwithstanding their definiteness and collectibility. Discount, like unissued stock, represents authorized capital which may never be raised, and should certainly not be viewed as a genuine asset unless and until decisive action is taken to collect.

Neither should stock discount, although a negative equity item, be construed as a loss to the issuing corporation. Issue at par may in general be preferable but this does not mean that issue below par brings any loss of asset values. Discount is simply that portion of the nominal amount of capital represented by stock outstanding which for one reason or another has not been paid in by the stockholders (and was not included in their subscriptions); and the appearance of this element in the accounts would not be necessary if it were not considered advisable to record par value in formal fashion.

Confusion of true discount and cost of marketing stock is not uncommon, particularly where large blocks are issued through underwriters. Discount is the difference between par value and the actual amount paid by the original body of stockholders; the cost of distributing stock is the amount paid in cash or equivalent for services rendered. (See discussion of commissions in Chapters XVIII and XXVII.)

**Disposition of Discount.** Absorbing stock discount in the operating charges of later periods, a treatment which naturally follows recording discount in the first instance as a deferred charge, is the most serious kind of blunder. This practice pads expenses with the amount of an offset to nominal capital and thus results in the retention of earnings in the business without passing such earnings through the income account; it permits revenue to be capitalized, in other words, without any acknowledgement of the process. In view of the fact that the preservation of the integrity of the income account is the major goal of the accountant such disposition cannot be too strongly condemned.

Assuming that the distinction between the original investment on the one hand and the accumulated surplus (or loss) on the other is fundamental, and that stockholders and others interested have a right to be fully informed in this connection, a case can readily be made for the retention of the discount account on the books as a permanent part of the record of capital stock or until eliminated by assessment. This position is sometimes opposed on the ground that discount is a doubtful item, the appearance of which tends to impair the standing of the corporation; and those holding to this point of view urge that discount, far from being retained indefinitely, should be absorbed by charges to surplus just as soon as this becomes feasible. Such opinion is largely the result of the mistaken notion that discount must be reported among the assets. If dis-

count is clearly shown on the equity side as a deduction from par in the determination of the amount paid in, the danger of misinterpretation is avoided and there is no basis for the fear that unjustified attitudes toward the business will be established.

It may still be urged that if the corporation's affairs are in such condition that there is no prospect that the amount of authorized capital represented by discount will ever be needed the discount should be eliminated. Accepting this point of view there remains the question of how the absorption of discount shall be accomplished. The best method is to take the necessary steps to secure a formal reduction in legal capital, either through a reduction of par value or a decrease in the number of shares.

The familiar view that the absorption of discount by charges to surplus will release the stockholders from the contingent liability represented by discount is not solidly founded. The courts have held again and again that a distinction must be drawn between the acts and affairs of the shareholder and the acts and affairs of the corporation in which he has an equity. It follows that the liability of the shareholder to contribute the full amount of par value can be satisfied only by definite payment by the shareholder, from his own funds, of the required amount. The accumulation of earnings *by the corporation*, however booked, does not constitute an explicit contribution *by the shareholder* to the corporate treasury.

The question of the relation of stock discounts to dividends is discussed in Chapter XXV.

**Assessments and Forfeited Stock.** For example, the R Co., with 10,000 shares of stock with a paid-in value of \$80,000 and a par value of \$100,000, calls an assessment on stockholders of the balance of the discount, \$2 per share. Accounts showing both par value and discount are on the books. All necessary formalities are taken care of, including notification of stockholders. The general entries necessary to recognize the changed status of the discount are as follows:

Assessments Receivable . . . . .	\$20,000	
Capital Stock—Discount . . . . .		\$20,000

If desired the somewhat nominal character of the absorption of discount at this point might be indicated through the use of a special account to receive the credit entry.

Assuming that all assessments are paid by the stockholders as scheduled the entries summarizing collections are:

Cash . . . . .	\$20,000	
Assessments Receivable . . . . .		\$20,000

Assessments receivable have about the same status as unpaid subscriptions, except that more difficulty is likely to be experienced in effecting

their collection. In handling assessments a subsidiary assessment account with each stockholder—to which is charged the amount assessed and to which the one or more amounts received are credited—should be maintained, unless it is convenient to use the accounts of the stock ledger for this purpose.

Shares on which assessments remain delinquent may by due legal process become forfeited to the Company. For example, assume conditions as above except that ten shares of stock owned by X are forfeited as a result of failure of the owner, after repeated notices, to make payment. These shares are later sold to Y for \$4 per share, assessment paid. Assuming that X has no claim on the proceeds, and ignoring the matter of incidental costs connected with the transaction, the following entries are in order:

(1)	
Capital Stock Outstanding—Par . . . . .	\$100
(and X's account in stock ledger)	
Assessments Receivable . . . . .	\$ 20
(also subsidiary assessment account with X, if any)	
Surplus from Forfeited Stock . . . . .	80
To eliminate book value of X's equity and offsetting assessment, and to recognize book surplus resulting from forfeiture	

(2)	
Cash . . . . .	40
Surplus from Forfeited Stock . . . . .	60
Capital Stock Outstanding—Par . . . . .	100
(also Y's account in stock ledger)	
To record sale of forfeited stock at \$4 per share, assessment paid	

The first step, evidently, consists of the elimination without cost to the Company of an equity with a net book value of \$80, which gives rise to a special surplus of like amount. The second step is the reissue of the forfeited stock, fully paid, for \$40 in cash, which is \$20 more than the amount of the assessment on this block. The net effect of the entire transaction, therefore, is a special equity adjustment of \$20 (ignoring costs incurred), which is reflected on the books under the above treatment by a credit balance in "surplus from forfeited stock." This surplus balance, since it arises in connection with the process of raising capital rather than with the process of operation, should be viewed as an element of capital surplus, an adjustment of the capital fund broadly interpreted.

An alternative treatment which many accountants would prefer consists of viewing forfeited stock as a form of treasury stock, with general-ledger entries somewhat as follows:

(1)	
Forfeited Stock . . . . .	\$20
Assessments Receivable . . . . .	\$20

(2)	
Cash	40
Forfeited Stock	20
Surplus from Forfeited Stock	20

The outcome is evidently the same under both treatments.

Throughout this example it is assumed that there is no deficit or earned surplus on the books. It is also assumed that shares of stock can pass through the "treasury" of the corporation without altering their status as determined by the conditions under which they were originally issued—without, that is, reverting to the status of unissued stock.

**Varying Discounts.** An interesting question will arise if successive blocks of a single issue of stock are disposed of over a period of time at different prices. The S Co., to illustrate, organizes with a capital stock, all of one class, of 1,000 shares, par \$100 each. At the outset 200 shares are issued at \$85 per share. Six months later 200 additional shares are marketed at \$90 per share. At still later dates, under continually improving conditions in the enterprise, another 200 shares are sold at 95, a fourth block is issued at par, and on the last 200 shares a premium of five points is realized. The proceeds of the issue, accordingly, total \$95,000, and the net amount of discount is therefore \$5,000. The entire process of issuing stock can be summarized on the corporation's books as follows:

Cash	\$95,000
Capital Stock—Discount	5,000
Capital Stock—Par	\$100,000

In this situation what price determines the amount of discount—and hence the contingent liability—attaching to the holding of the particular investor? Is it the price per share paid by the stockholder or the average issue price per share? How, in other words, should the net discount be applied to the subsidiary stock accounts for the purpose of levying an assessment should the occasion for such action ever arise?

From the standpoint of equity it would seem at first sight that the assessment of each stockholder should be fixed by and limited to the difference between the amount paid in on his stock and par value. Levying an assessment uniformly on the S Co. stock would not only disregard the varying discounts on the first three blocks issued but would mean assessing stock issued at par and also at a premium. It would also mean that the liability attaching to the first block, for example, was affected by subsequent transactions, without any action by holders of such block. That is, the assessable amount per share while only one block is outstanding is clearly \$15, and to hold that this liability is reduced by contributions of other shareholders seems to admit that the liability of the particular stockholder can be changed by some other process than requiring him to

deposit additional funds with the corporation. From the standpoint of procedure, moreover, fixing the discount on all shares by reference to the average amount paid in would mean that as each additional block was issued it would be necessary to call in all outstanding certificates and change their paid-in values.

On the other hand the view that assessable discount can be determined separately for each share or block issued presents the difficulty of running counter to the doctrine that all shares of a particular class of stock outstanding are identical and interchangeable with respect to voting power, dividend participation, and all other respects. If the stock is truly homogeneous how can varying assessments be levied on the shares outstanding at a particular time? If the S Co.—to refer to the example—were liquidated at this point the participation of each share in the available proceeds would presumably be the same, regardless of the varying amounts paid in. In any event the stock acquired at a price in excess of par would not be entitled to a “negative assessment,” contributed by the holders of other blocks. Further, the inequity which would result from spreading the net discount uniformly is more apparent than real. If the stockholder is familiar with the conditions in the particular enterprise and realizes that in acquiring stock his shares will have the same status as all other shares, no matter when and how issued, and with this knowledge deliberately pays a certain price for his stock, it can be assumed that he considers the stock worth the price paid, in view of all the conditions, and no inequity is involved in the fact that the contingent liability incurred is more or less than that indicated by the particular price. For example, he may be willing to pay more than earlier subscribers, and assume a contingent liability nominally out of line with the price of his stock, for the sake of securing participation in prospective earnings or in profits which have already accrued.

In fact it can be definitely demonstrated that an assessment of the stockholders of the S Co. cannot be accomplished in terms of the conditions under which each block was issued, even if it be assumed that the certificates are so handled that the blocks can be continuously identified notwithstanding numerous transfers. If each block were separately assessable the amount collectible from the first three blocks issued would total \$6,000, and there would be nothing collectible from the last two blocks. But the discount applicable to the stock as a whole—the total amount assessable for the benefit of creditors in the event of insolvency—is only \$5,000. The necessity for this conclusion would be still more apparent if the premium paid by one group of stockholders more than offset the discount associated with the issue of the rest of the shares outstanding.

It is scarcely necessary to add that cases of varying discounts, definitely acknowledged, are not likely to be of frequent occurrence.

**Effect of Transfers upon Discount.** Is the amount of discount affected by the price paid when issued stock is transferred from one party to another? Answer in the negative is clearly required. The amount of discount is fixed by the difference between par value and the amount paid in by the original stockholders. This means that a person buying a share of stock which is not fully paid assumes the contingent liability attached even if he pays an amount substantially in excess of par value. Transfers in no way affect the amount or composition of the stockholders' equity on the corporate books, although they must be recorded in the underlying stock ledger.

The situation is not so clear where stock issued at a discount has been "purchased" or otherwise acquired by the corporation itself, and after being held for a period in the corporate treasury is reissued. The R Co., for example, buys 100 shares of outstanding stock issued at \$90 and with a par value of \$100 at a price of \$95 per share. Later this stock is "sold" at \$105 per share. In this situation what is the paid-in value of this block of stock? Accepting the theory that the corporation is able to act in the dual capacity of issuer and holder, the purchase and sale of the stock is a bona-fide transfer between two stockholders and the amount of the discount remains at \$10 per share. If, on the other hand, acquisition by the corporation is assumed to reduce the stock outstanding and return the block acquired to the status of unissued stock, it is evident that the "sale" of the stock has the effect of an original issue of shares, in this case at a premium. The first interpretation is presumably the more acceptable from the legal standpoint although the second is more in accord with the general framework of accounting concepts.

The problem of accounting for acquisitions of outstanding stock by the corporation will be considered more fully in the next chapter.

**Discount on Preferred Stock.** Any class of par-value stock may be issued at a discount, and the contingent liability presumably attaches exclusively to the particular class of stock through which the discount originates. Thus it is possible for a corporation to issue fully paid common stock and preferred stock at a discount. The M Co., for example, issues 10,000 shares of common stock with a par value of \$10 per share at par, and later disposes of 1,000 shares of preferred stock, with a par of \$100, at \$90 per share. In this situation the preferred stock is assessable, at least in theory, although the common stock is paid up in full.

The agreement with the preferred stockholders commonly provides that in the event of liquidation they shall be entitled to the par value of their holdings before any distribution may be made to the junior share-

holders. Does this in any way affect the assignment of discount arising through the issue of preferred stock? A negative answer is justified, on the ground that liquidation conditions—although they should not be lost sight of—do not control the accounts and statements of the going concern. With respect to the capital accounts of the corporation it is clearly the task of the accountant to show the amount actually paid in by each class of stockholders, even if this classification does not correspond to the distribution which would be in effect upon dissolution, and this requirement controls the presentation of par values and discounts.

The proper treatment in the balance sheet of the capital stock accounts of the M Co. as described above can be indicated as follows:

Capital Stock:	
Preferred Stock (1,000 shares, par \$100)	
Par Value . . . . .	\$100,000
Discount . . . . .	10,000
	<hr/>
Amount Paid In . . . . .	\$ 90,000
Common Stock (10,000 shares, par \$10 each)	
Amount Paid In . . . . .	100,000

Even if there is some doubt as to the manner in which shareholders are assessable where different blocks of one kind of stock are issued at varying prices it may be assumed that there can be no merging or averaging of the contingent obligations of two or more distinct classes of stock.

**Composite Stock Issues.** When two or more kinds of stock are issued jointly for a lump-sum payment by the subscriber how should the amount received be apportioned on the corporation's books? A general answer to this question may be found in the consideration of a simple illustration. The M Co. issues 100,000 shares of no-par common stock as a "bonus" to parties subscribing for 50,000 shares of preferred stock at par, \$100. At about the same time another block of 100,000 shares of common stock is issued for \$5 per share, cash. In this situation it seems reasonable to hold that the independent sale of a substantial amount of common stock fixes the price implicit in the issue of common and preferred jointly. A subscription for one share of preferred stock, in other words, in effect includes a subscription for two shares of common stock at \$5 each, which means that of each \$100 paid in the amount of only \$90 is applicable to the preferred. Under this interpretation condensed entries covering the issue of the preferred and bonus stock are:

Cash . . . . .	\$5,000,000	
Capital Stock Preferred—Discount . . . . .	500,000	
Capital Stock Preferred—Par . . . . .		\$5,000,000
Common Stock—Paid-In Value . . . . .		500,000

It is very likely in this situation that the implicit discount on preferred stock would not be construed as legal discount subject to assessment.

It represents, nevertheless, the difference between the par value and the amount paid in which is assignable to preferred and should be reported as such. That the preferred stock is presumably entitled to par value in the event of dissolution need not alter this conclusion.

Where all of the stock is issued in composite units it may be necessary to divide the amount paid in arbitrarily, at least for the time being. If the junior stock involved has a minimum legal value a corresponding amount of the total paid in—for want of a better figure—may be assigned to the common stock. Seldom if ever is it reasonable to assume that one type of stock has no recognizable value; in general even the residual stock in a going concern, due to the control represented and the speculative possibilities, has some fair market value. In some cases the only feasible preliminary treatment may be to credit the entire proceeds to a joint account, supported by a stock ledger covering both classes of shares. Assume, for example, that the M Co. issues preferred and common stock jointly as above but that no shares of either preferred or common are issued separately. The following entries reflect this condition:

Cash . . . . .	\$5,000,000	
Capital Stock Preferred and Common . . . . .		\$5,000,000
To record issue of 50,000 shares of preferred, and 100,000 shares of common stock as a bonus there- with, the total proceeds being \$5,000,000		

If a market price for one or both kinds of stock is established soon after the date of issue the composite credit may be broken down by reference to the quoted figures. Within a few days, to illustrate, there are a number of transfers of M Co. preferred and common stock at \$94.50 and \$5.25 per share, respectively, indicating a market value per unit (one share of preferred and two of common) of \$105. It would now be possible, and not unreasonable, to apportion the proceeds of the joint issue on the basis of these valuations, which would mean assigning 945/1050, or 90%, to the preferred issue and the balance of 105/1050, or 10%, to the common stock. This suggestion, it should be emphasized, must not be pushed too far, as the relationship of market prices some time after organization may not reflect the original relationship implicit in the composite issue price.

It may be difficult to issue par-value stock as a bonus without rendering it liable to assessment. This fact sometimes leads to the nominal validation of par value by the procedure outlined below in the discussion of donated stock, as a means of obtaining a supply of stock which can be reissued without acknowledged consideration.

**Issue of Stock for Property—Overstatement of Consideration.** In connection with partnership incorporation, reorganization, merger, etc. large blocks of stock are often exchanged directly for land, mineral rights,



buildings and equipment, patents, and other assets having more or less uncertain cash values, and in such situations it is still common practice to assume that the costs of the assets acquired are measured by the par value of the securities issued. The result, as a rule, is inflation of property values and corresponding overstatement of paid-in capital. A particularly unfortunate aspect of these cases of stock "watering" has been the ready acceptance by the governmental agencies involved of nominal terms of contracts and resolutions of boards of directors as evidences of actual values. Overvaluation, in other words, is seldom if ever construed as legal discount, even where the attendant circumstances make the fact of such overvaluation quite apparent.

The M Co., for example, is organized by M for the purpose of taking over certain assets which he owns and expanding the activities in which he has been engaged. The authorized capital consists of 1,000,000 shares of common stock, with a par value of \$10 per share, and 50,000 shares of preferred stock, par value \$100 each. The corporation issues 500,000 shares of common stock to M in exchange for assets which are listed in the contract with M as follows:

Accounts Receivable . . . . .	\$ 100,000
Inventories . . . . .	500,000
Land . . . . .	400,000
Buildings and equipment . . . . .	1,000,000
Goodwill . . . . .	3,000,000
	<u>\$5,000,000</u>

These figures correspond to the net values on M's books, except in the case of goodwill, and are supported by a specific resolution of the board of directors. Thirty thousand shares of preferred stock are issued for cash at par to various parties. The condensed balance sheet at this point, based on the values as stated, would show the following:

<i>Assets</i>		<i>Equities</i>	
Cash . . . . .	\$3,000,000	Capital Stock—Preferred . . . . .	\$3,000,000
Accounts Receivable . . . . .	100,000	Capital Stock—Common . . . . .	5,000,000
Inventories . . . . .	500,000		
Land . . . . .	400,000		
Buildings and Equipment . . . . .	1,000,000		
Goodwill . . . . .	3,000,000		
	<u>\$8,000,000</u>		<u>\$8,000,000</u>

Is this statement correct? On the face of it the item of "goodwill" appears to represent a means of validating the par value of the common stock, and the value assigned, accordingly, may well be viewed with suspicion. Since the figure of \$3,000,000 has been accepted by the board

of directors, however, the accountant is likely to be reluctant to question it, unless decisive evidence of its impropriety is at hand. In general the best test of the commercial values actually present in such a situation is afforded by independent sales of the stock on a cash basis occurring during the period of organization or shortly thereafter. If, for example, M sells a considerable block of M Co. common stock within a few days or weeks of date of issue at \$5 per share, it is not unreasonable to hold that this demonstrates a value of \$5 per share for all such stock outstanding and implies a cost to the corporation of the assets received from M, on a cash basis, of only \$2,500,000. Under this condition—and assuming that the stated figures for tangible assets are not unreasonable—a value of only \$500,000 is indicated for the intangible assets taken over. A revised balance sheet based on this interpretation, and ignoring other possible changes, would show:

<i>Assets</i>		<i>Equities</i>	
Cash . . . . .	\$3,000,000	Capital Stock—Preferred . .	\$3,000,000
Accounts Receivable . . . .	100,000	Capital Stock—Common:	
Inventories . . . . .	500,000	Par . . . . .	\$5,000,000
Land . . . . .	400,000	Estimated	
Buildings and Equipment . .	1,000,000	Overval-	
Intangibles:		uation * . .	2,500,000
Nominal Val-			
uation . . . . .	\$3,000,000		
Estimated Over-			
valuation * . .	2,500,000		
	<u>\$5,500,000</u>		<u>\$5,500,000</u>

\* Based on value of \$5 per share indicated by sale of substantial block of stock for cash at that price by M shortly after date of issue.

Certainly a public accountant who failed to bring out the clear implication of the private sale of stock by M at \$5 per share could be criticized for neglecting a fact of material significance to a statement of the status of the new corporation.

It must not be concluded that the books of a corporation should at all times reflect the prevailing market value of its stock. In general the corporate accountant is not interested in the prices appearing in connection with transfers of stock from one party to another—prices which fluctuate widely and are the resultant of many factors quite outside the processes by which the amounts of corporate resources are compiled on the books. The cash price of shares at the time of organization, however, as evidenced either by the issue of particular blocks or by transfer between stockholders, does furnish an important indication of the fair market value—and implied cash cost—of property acquired by the corporation in exchange for capital stock.

Overstatement of capital through overvaluation of original resources

is not confined to companies using par-value stocks. No-par stocks have often been issued at nominal values far in excess of the fair market value of the supporting assets. Nevertheless there is some reason for believing that the determination of a formal capital value in advance of the issue of the stock tends to encourage overstatement.

**Finding Property Costs.** Aside from the use of the market price of shares as a guide to the total recognizable cost of property received for stock there are a number of points to be observed in ascertaining and recording the costs of the assets acquired in this manner. In the first place it should be realized that the assets taken over by a new corporation presumably should not be recorded on the company's books at the values at which they have been carried on the vendor's records, even where it is clear that sound accounting methods have been in effect. Recorded figures often fail to approximate cash sale value, particularly in the case of fixed assets. The market values—and actual costs to the corporation—may be less than book values due to such factors as insufficient allowance for bad debts, falling inventory prices, and unrecognized obsolescence; they may exceed book values because of advancing inventory prices, land appreciation, excessive depreciation recorded, etc. Appraisals are often necessary in this connection.

Care must be taken to distinguish between the costs of particular tangible assets and the cost of the special services required in connection with promotion and reorganization. In practice the general service costs are sometimes absorbed in the accounts with tangible assets with the result that subsequent reports afford no basis for judging the reasonableness of this element. It is important, too, that any portion of total cost assignable to goodwill or other intangibles be segregated.

Finally, the terms of contracts between the vendors and the corporation must not be taken too seriously, particularly where the two parties are not entirely independent. Even the issue of a check for a specified amount does not always demonstrate the existence of a bona-fide transaction, with values determined by arm's-length bargaining on a commercial basis. The conclusions reached in the particular case should represent a careful interpretation of all available data.

**Donated Stock—Conventional Treatment.** It was formerly common—particularly in jurisdictions in which it was presumably illegal to issue stock at a discount—for mining corporations and other speculative enterprises to issue a large block of stock in exchange for property with the understanding that a portion of such block was to be returned to the corporate treasury as a "donation" for the purpose of facilitating the raising of working capital. By this device the stock was made nominally

"fully paid and nonassessable," with consequent increase in marketability, and was then sold at whatever price it would bring.

The K Co., to illustrate, is organized to exploit certain patents held by K. The authorized capital is 100,000 shares, par \$10 each. Qualifying shares are issued to the members of the first board of directors at par for cash, \$100. K agrees to assign his patents to the corporation for the balance of the stock with the understanding that 49,989 shares be donated to the Company's treasury for resale, and this agreement is consummated. The donated stock is then sold to various parties at an average price of \$5 per share. Organization costs, commissions, etc. are paid in cash, \$20,000. The conventional entries for this situation, ignoring subscription accounts, are as follows:

(1)		
Cash . . . . .	\$ 100	
Capital Stock . . . . .		\$ 100
To record issue of directors' qualifying shares		

(2)		
Patents . . . . .	999,900	
Capital Stock . . . . .		999,900
To record issue of stock to K for patent rights		

(3)		
Donated Treasury Stock . . . . .	499,890	
Donated Capital Surplus . . . . .		499,890
To record receipt of 49,989 shares from K as a donation		

(4)		
Cash . . . . .	249,945	
Donated Capital Surplus . . . . .	249,945	
Donated Treasury Stock . . . . .		499,890
To record sale of treasury stock at \$5 per share		

(5)		
Organization Costs . . . . .	20,000	
Cash . . . . .		20,000
To record payment of organization charges		

On the basis of these entries the balance sheet would stand as follows:

<i>Assets</i>		<i>Equities</i>	
Cash . . . . .	\$ 230,045	Capital Stock (10,000 shares, par \$10 each) . . . . .	\$1,000,000
Patents . . . . .	999,900	Donated Capital Surplus . . . . .	249,945
Organization Costs . . . . .	20,000		
	<u>\$1,249,945</u>		<u>\$1,249,945</u>

Under this procedure the nominal terms associated with each step in the chain of events are accepted without question. It is assumed that K, in his anxiety to launch the enterprise, is willing to make a genuine donation to the corporation; he delivers property to the amount of \$999,900 and retains—finally—only 50,001 shares of stock, thus contributing

a capital surplus or premium of \$499,890. Upon the reissue of the donated stock at a price which is half of par value the donated "surplus" is offset to the extent of \$249,945, leaving a balance of \$249,945. This does not mean that the amount of K's donation has been reduced; this continues to be measured by the excess of the accepted value of the patents over the par value of the stock retained. The net effect of both transactions, however, is a capital surplus of \$249,945 applicable to 100,000 shares of stock with a par value of \$10 each. Of this final surplus the amount of \$124,975 (50,001/100,000 of \$249,945) attaches to K's stock. This means that K has contributed to the equity represented by the remaining 49,999 shares—including qualifying shares—the difference between the total premium paid on the shares retained, \$499,890, and his interest in the final surplus, \$124,975, or \$374,915.

**Donated Stock—Revised Treatment.** The conventional treatment of donated stock outlined for the above example is neither conservative nor logical. Even without the demonstration given by the sale of donated stock at \$5 per share it should be obvious that the donated surplus is not a true paid-in value. The understanding with K is presumably in writing and in any event the effect of the arrangement is plain. K agrees to turn over his patents to the corporation for 50,001 shares of stock; there is no indication that he pays a premium for the shares he retains. If, therefore, it is desired to use special accounts to trace the effect of the donation such accounts should be interpreted as offsets to capital stock and patents, respectively, and should be reported accordingly in any interim statement. When the donated stock is sold it becomes apparent that the value of all the stock on a cash basis is only \$5 per share, and that the total resources of the enterprise amount to only \$500,000. Subtracting from this total the amount of cash and organization costs, \$250,045, leaves \$249,955 as the implicit cost of the patents, on a cash basis. From this standpoint the entries shown in the preceding section beginning with (2), should be revised as follows:

(2)		
Patents—Nominal Valuation . . . . .	\$999,900	
Capital Stock—Par . . . . .		\$999,900

(3)		
Capital Stock—Donated Shares . . . . .	499,890	
Patents—Reserve for Valuation . . . . .		499,890

(4)		
Cash . . . . .	249,945	
Capital Stock—Overvaluation . . . . .	249,945	
Capital Stock—Donated Shares . . . . .		499,890

(5)  
(as above)

(6)		
Capital Stock—Overvaluation . . . . .	250,055	
Patents—Reserve for Valuation . . . . .		250,055
To reduce value of other shares outstanding to level indicated by sale of donated stock		

A balance sheet prepared at this point, arranged to show both nominal and implied cash values, would appear as follows:

<i>Assets</i>		<i>Equities</i>	
Cash . . . . .	\$230,045	Capital Stock (10,000 shares, par \$10 each):	
Patents:		Par Value . . . . .	\$1,000,000
Nominal Valuation . . . . .	\$999,900	Estimated Overvaluation * . . . .	500,000
Estimated Overvaluation * . . . .	749,945		249,955
Organization Costs . . . . .	20,000		
	<u>\$500,000</u>		<u>\$500,000</u>

\* Total consideration is determined by reference to cash sales of stock at \$5 per share; net value of patents is found by subtracting the sum of the cash balance and the cash expenditures for organization from the total consideration.

Any other conclusion in these circumstances would be ridiculous. The parties who are investing nearly \$250,000 in cash for nearly half the stock are thereby furnishing the best available evidence of commercial value. And had K delivered property to the corporation actually worth \$999,900 the donated stock would have been readily salable at a premium.

The revised treatment might be modified slightly by exempting the ten shares issued for cash at par from the revaluation to the \$5 basis. If this were done the net value of the patents would be found by multiplying the shares retained by K, 50,001, by the implied value per share, \$5, which would result in a figure of \$250,005. This modification, however, is subject to the objection that the sale of the large block is a more decisive indication of actual value than the issue of qualifying shares, and that it is unreasonable to use two values in recording a single issue of homogeneous units. The fact that a block has been issued at par may be assumed to have been taken into account by the purchasers of donated stock as one of the factors—minor, in this case—determining the price they were willing to pay for their shares. In other words, if the directors had contributed less than \$100 for the ten shares issued to them the price of the donated stock would presumably have been slightly under \$5.

In general the task of the accountant does not include property appraisals. But he is responsible for interpreting and reporting the data of financial position, and cannot be excused for failure to insist on presenting the clear implications of a related group of transactions. Ready ac-

ceptance of the nominal terms of complex contracts, which are often designed by the attorneys to draw red herrings across the trail rather than to bring essential facts to light, and unwillingness to do more than record such nominal terms, step by step, without "putting two and two together," do not suggest a high level of professional competence and integrity.

In such situations, it is true, the accountant faces a serious practical difficulty in that his interpretation may clash with the desires of the management, and for the private accountant employed by the corporation the attitude of the officers is likely to be controlling. Nevertheless it may be insisted that for the public accountant who is preparing and certifying to financial statements for general use the only proper course is to refuse to be a party to obvious overstatement of resources and capital.

See Chapter XXVI for discussion of genuine donations by stockholders.

**Premium on Par-Value Stock.** Although in law the excess over par value paid in by stockholders is commonly viewed as surplus the accountant usually takes the position that stock premium represents a part of the total investment and should be reported as such. In particular accountants object to the doctrine that premium affords a basis for dividend appropriations. It is not ordinarily good financial administration to return as dividends (except for payments in partial or complete liquidation) any part of the funds paid in by shareholders, and such action is almost sure to be misleading to present and prospective investors. This position is well taken even where preferred stock is outstanding and the question of appropriating preferred dividends from stock premium—a form of capital surplus—arises; except in very unusual circumstances dividends should be declared on no class of stock except in the presence of current or accumulated profits. The proper treatment, for premium, assuming that the tradition that par value shall be reported separately is accepted, is that prescribed by the Interstate Commerce Commission for the enterprises under its jurisdiction. The classifications for steam railways, for example, include a capital account entitled "premium on capital stock," and this account appears in the same section of the balance sheet as that which shows par value.

Issue of par common stock at a premium is rare in the industrial field. Preferred stocks are occasionally issued at a price above par but the amount of such a premium is generally small.

Inclusion of premium in current net profit should never be countenanced. Whatever conclusion may be reached with respect to the propriety of treating premium as surplus and basing dividends thereon it is

clear that no part of the contribution of the stockholder can properly be regarded as income.

It has been a tradition in banking (fostered by legal requirements) that stock should be issued at a substantial premium, as a means of expanding invested funds beyond the stated amount of capital. (It would perhaps be more reasonable if the practice were to authorize a larger amount of stock and issue all shares at par value.) Such premium is usually credited to surplus or capital surplus, but is viewed as a part of the capital structure, not available for dividends.

Premiums received on more than one class of stock should not be combined in a single ledger account. As in the case of stock issued at a discount, it is advisable to show in the balance sheet the amount actually received for each class of stock. From the standpoint of the distribution of assets in liquidation, it is true, premium on preferred stock may not represent an equity of the holders of this class of stock, but this fact does not make it undesirable to show the origin of the premium. The possibility of combining discount and premium on different blocks of one class of stock was referred to in the discussion of varying discounts earlier in the chapter.

**No-Par Stock and Paid-In Surplus.** Mention was made in the preceding chapter of the widespread and somewhat unfortunate practice of treating a substantial portion of the proceeds of the issue of no-par stock as a form of surplus. The M Co., for example, issues 1,000,000 shares of no-par common stock at a price of \$15 per share. By resolution of the board of directors the stock is given a stated value of \$7.50 per share, and the amount received in excess of this value is treated as paid-in surplus. The summarized entries, according to the treatment usually recommended, are:

Cash . . . . .	\$15,000,000	
Capital Stock . . . . .		\$7,500,000
Paid-In (or Capital) Surplus . . . . .		7,500,000

In the balance sheet the stock equity in this situation should be reported as follows:

Capital Stock:		
Stated Value . . . . .	\$7,500,000	
Paid-In Surplus . . . . .	7,500,000	\$15,000,000

This procedure, although intrinsically less satisfactory than inclusion of the entire proceeds in a single account, serves to emphasize the capital character of the "surplus" and should discourage improper action in connection therewith. Unfortunately some corporations still fail to distinguish capital surplus from earned surplus in their accounts and reports, and there are many cases in which dividend appropriations are



based, directly or indirectly, upon funds represented by the contributions of stockholders. (See discussion of capital transfers in Chapter XXIV.) It is deplorable that this condition is given legal sanction.

The practice of crediting a part of the invested funds to surplus is sometimes defended on the ground that the corporation and its creditors are placed in a better position by the creation of a buffer equity element which can be used to absorb losses or—in a “pinch”—as a basis for dividend appropriations, particularly on preferred stock, without impairing formal capital. The weakness of this position should be apparent. If losses of invested funds are suffered the hardship to stockholders is not minimized by the practice of setting up the proceeds of the capital stock when issued in two sections, one of which is viewed as a form of surplus. Neither does this practice render the position of the creditor any more secure as it does not affect the size of the “cushion” which affords him protection. Moreover, as indicated above, continuation of either preferred or common dividends when there are no current profits and no earned surplus is generally most undesirable. And if funds are available for distribution in this situation why should not any disbursements made be labeled for what they are—distributions of invested capital?

Another excuse offered for the setting up of capital surplus based on contributed funds is that this furnishes a means by which promotion and organization costs may be immediately absorbed without disturbing stated capital value. The answer to this is, first, that preferably such costs should not be written off but should be treated as a special element in going-concern resources, and, second, that if it be assumed that there is merit in the policy of immediate absorption this might readily be accomplished by appropriate reduction of stated value, without the use of the device of establishing a capital surplus. The proper treatment of organization costs was outlined in Chapter XVIII.

Where preferred stock is authorized without par value it is desirable if not necessary to settle upon an amount to which each share is entitled in the event of liquidation. The ideal arrangement is to give the preferred shares a priority in liquidation proceeds to the extent of the actual issue price. If the redemption price or prior claim to assets in liquidation is set at a point above or below issue price the amount may be indicated in the reports parenthetically or by footnote. In all cases the best treatment is to credit the total proceeds of the preferred stock to capital account. If part of such proceeds is treated as “surplus” the amount should be restricted to the excess of the total paid in over redemption or liquidation value and in any event the total amount contributed by preferred stockholders should be clearly disclosed; otherwise there is con-

tinuing danger of serious misinterpretation, including the possibility of appropriating dividends on common stock out of funds contributed by preferred stockholders.

**Contributions by Outsiders.** Occasionally contributions are made to the capital resources of an enterprise—either during organization or later—by parties securing no rights of ownership. An interested municipality, for example, may donate right-of-way or land to a new industrial establishment. All such contributions, from the legal point of view, are a form of capital surplus, and should be accounted for in such manner as to make their nature entirely clear. The standard classifications of accounts for steam railways include the specific title “grants in aid of construction” for the purpose of recording the value of property received by donation.

Incidental gifts received after operations have begun, and not associated with any capital-raising or construction program, should be handled as miscellaneous income.

### QUESTIONS

1. Define stock discount. Should discount be recorded in the accounts and statements, and if so, how? Contrast stock discount and cost of raising capital.
2. “Discount on stock is a deferred charge to operations which should be absorbed as soon as revenues are adequate for the purpose.” Discuss.
3. “An important reason for prompt amortization of discount on stock is the desirability of relieving the stockholder from the contingent liability involved as soon as possible.” Discuss.
4. Under what circumstances are stockholders assessed? Give entries illustrating the levying and collecting of an assessment. What action is open to the corporation where a shareholder fails to pay?
5. A, an original stockholder, owns 100 shares of X Co. stock, par \$100 per share, acquired at \$90 per share. B, also an original stockholder, owns 100 shares for which he paid \$105 each. Ignoring the effect of other possible holdings, is X Co. stock assessable, and if so, how would an assessment be levied?
6. A corporation issues 10,000 shares of stock, with par value of \$10 each, for a consideration of \$9 per share. Later the company acquires 100 shares of this stock at a cost of \$11 per share. After holding the acquired stock for a time in the “treasury” the company “sells” the block for \$1,000. Is the amount of assessable discount affected by the transactions in treasury stock?
7. How should discount on preferred stock be recorded, assuming that the par value of the preferred stock represents a prior claim to assets?
8. Illustrate the proper method of allocating the consideration where shares of two or more classes of stock are issued as a unit.
9. If stock is issued for property of uncertain value how shall the true issue price be determined?
10. “Where a corporation issues stock to acquire the property of another enterprise the assets received may be recorded at the figures appearing in the vendor’s accounts, assuming that these accounts have been properly kept.” Is this sound?
11. With an illustration explain the nature and effect of transactions in which

par-value stock is "donated" by the first holder to the corporation in accordance with an understanding reached before the stock was issued. Can a true surplus originate from such a donation?

12. What is the nature of premium on par-value stock and how should it be reported? Should dividend appropriations be based on stock premium?

13. Ideally, how should the consideration received for no-par stock be recorded? What is the usual practice?

14. "Creation of surplus from a portion of the proceeds of a stock issue is sound practice. By this means a buffer is made available to absorb losses without impairment of capital. Such surplus is also desirable as a basis for dividend appropriations during periods of depression." Discuss.

15. The Harlow Chamber of Commerce donates a tract of land to the Ward Packing Co. as a site for a cannery. The fair market value of the tract is \$6,000. In accepting the property the Company agrees to erect a plant to cost not less than \$30,000. Should this property be recorded in the accounts and statements of the Ward Packing Co., and if so what entries would you recommend?

## XXIV

### ADJUSTMENTS OF CAPITAL STRUCTURE

**Split-Ups.** Strictly defined a split-up is any operation by which the number of shares outstanding is increased without any change in the total stock equity or its principal subdivisions. The M Co., for example, has outstanding 100,000 shares of stock with a par value of \$100 each. The price of the stock on the market has reached \$400 per share, with a resulting decrease in trading. To increase the marketability of the shares steps are taken to change the capitalization to 1,000,000 shares with a par value of \$10. The old certificates are then called in and new certificates are issued on the basis of ten shares of new stock for each old share held. The transaction makes no change in the amount of formal capital, which remains at \$10,000,000, and the surplus account is in no way affected. The only effect on the equity of the stockholder is the increase in the number of equal portions into which such equity is divided. It follows that no entries are necessary in the general ledger, although revision of the stock ledger with respect to number of shares in individual holdings is advisable. The title of the capital stock account in the general ledger may also need some modification.

A recapitalization in which outstanding par-value stock is called in and a larger number of no-par shares are issued in exchange, with no accompanying change in surplus, is a form of split-up. Issue of par-value stock in exchange for no-par stock may similarly result in an increase in the number of shares outstanding. If only stock without par value is involved the calling in of outstanding certificates is not required in the event of a split-up unless unit stated value, which must be revised in view of the change, appears thereon. Where unissued stock is available a split-up may occur without formal recapitalization through the issue pro rata of additional shares of the same character as those outstanding.

Issue of new certificates to replace those outstanding, with no change in the number of shares, cannot be defined as a split-up, whatever the reason for the change.

Not infrequently the reason for a change in par value, or a shift from no-par stock to par stock or vice versa, is found in developments in the

tax structure as these affect the corporation or the shareholder. If, for example, a tax is levied on intangible property under which the amount of the tax is influenced by the par value of securities held, the effect will be to make low par values popular.

**Decreases in Number of Shares.** Like the split-up, a reduction in number of shares outstanding, with no change in the amount of capital or surplus, is a nominal occurrence from an accounting standpoint. The R Co., for example, has outstanding 1,000,000 shares of no-par stock, with a stated and paid-in value of \$5 per share. The capital structure is changed to 200,000 shares of stock with a par value of \$25 each, and the old certificates are called in and new issued. The transaction results in no change in the amount of capital, which remains at \$5,000,000, and no entries are required except in the detailed supporting records.

If the paid-in value of outstanding no-par stock exceeds the stated or declared value, and par-value stock is substituted in precisely the amount of the total paid-in value, it is necessary to record the exchange by eliminating both stated value and capital surplus and setting up the equivalent amount of par value.

Where par-value stock is outstanding the number of shares may be decreased through a recapitalization in which the par value per share is increased. Par-value stock may also be called in, and a smaller number of shares of no-par stock substituted therefor, although it is more common for the numbers of shares to be increased through such an exchange. As in other modifications of the stock account which do not change the total amount of capital, all transactions of this character call only for an appropriate new description of capital stock and a revision of the stock ledger.

**Transfers between Capital and Surplus.** In connection with a change in capital structure which is primarily a redescription of the capital account and a revision of the number of component parts it is sometimes decided to transfer a portion of surplus to capital or of capital to surplus. Where partial capitalization of surplus is associated with the change the effect is that of the stock dividend. (See Chapters XXV and XXVI.) Where a section of capital is transferred to surplus as a feature of the transaction—for example, through reduction of par or stated value per share with no increase in number of shares outstanding—the effect is similar to that obtained through the treatment of part of the original proceeds of the stock as surplus and the practice is subject to the same objections as apply to such treatment. (See Chapter XXIII.)

The influence of redemptions and conversions upon earned surplus is considered in some detail in later sections of this chapter.

**Warrants Issued with Stock.** For an example assume that the M Co. issues 1,000 shares of preferred stock at par value, \$100 per share, with warrants attached to the certificates which authorize the holder to subscribe for two shares of no-par common stock at \$5 per share for each share of preferred stock with respect to which the warrants were issued. The warrants are in the form of detachable certificates and are separately transferable; they expire one year from date of issue. At the date the preferred stock is issued the no-par stock has a market value of \$6 per share and warrants are being sold at a corresponding figure, namely \$2 each. The outstanding common stock amounts to 98,000 shares with a paid-in value of \$588,000. There is no earned surplus on the books. Under these conditions the following entries are appropriate to cover the issue of preferred stock with warrants:

Cash . . . . .	\$100,000	
Capital Stock Preferred—Discount . . . . .	2,000	
Capital Stock Preferred—Par . . . . .		\$100,000
Common Stock Warrants . . . . .		2,000

An alternative treatment, postponing the separation of the amount paid in between preferred stock and warrants, is as follows:

Cash . . . . .	\$100,000
Capital Stock Preferred with Warrants . . . . .	\$100,000

Immediately after issue warrants to subscribe for 500 shares of common stock are exercised. The necessary entries—corresponding to the first treatment shown above—are:

Cash . . . . .	\$2,500	
Common Stock Warrants . . . . .	500	
Common Stock—Capital Value . . . . .		\$3,000

This method of dealing with the situation accepts the view that of the amount paid in for each share of preferred stock \$2 represents the cost to the investor and the issue price to the corporation of warrants to purchase common stock. The procedure commonly followed in practice, which ignores the market value of warrants as issued, would result in this case in a paid-in value for common stock of only \$5 per share. The entries given have the advantage of showing clearly the composition, from the standpoint of sources, of the total paid-in capital. The implicit discount on preferred would probably not be construed as legal discount subject to assessment, but it is nevertheless desirable to show clearly the amount of funds contributed by the preferred stock as such.

One year later—continuing the example—the remaining warrants are exercised by the holders. At this time the earned surplus, all applicable to the common stock, amounts to \$150,000. The market value of the

stock is \$8 per share. Notwithstanding the new conditions the entries on the Company's books are on the same basis as those covering the earlier exercise of warrants:

Cash . . . . .	\$7,500	
Common Stock Warrants . . . . .	1,500	
Common Stock—Capital Value . . . . .		\$9,000

Under this treatment the warrants are considered as representing, throughout their life, the amount of the deposit on prospective common stock subscriptions implied in the conditions existing at the date of issue. The accumulation of surplus and the change in the market value of the stock are considered to have no bearing.

In some cases a changing schedule of subscription prices is associated with stock warrants. Assume, for example, that the warrants attached to M Co. preferred stock have a two-year life and provide for a subscription price of \$6 per share during the second year. With these conditions the exercise of warrants in the second year would be recorded as shown above, except for the change in amount. That is, the entire amount paid in by the subscriber plus the original book value assigned to the warrants should be credited to capital account (including any element reported as capital surplus).

**Use of Rights in Increasing Capital.** The most typical use of stock rights arises in connection with the process of raising new capital through the issue of an additional block of authorized stock. As a general rule such stock cannot be issued to outsiders until the existing stockholders have been offered the subscription rights and have permitted them to lapse. The regular procedure in this connection is to issue transferable warrants to all stockholders representing their proportionate rights to subscribe for the new stock at a stated price per share. If, for example, there were 100,000 shares outstanding and it were proposed to issue 10,000 additional shares, the holder of 100 shares would receive a warrant entitling him to subscribe for ten shares; similarly the holder of 125 shares would receive a warrant acknowledging his right to subscribe for twelve and one-half shares. The rights usually run for a limited period and expire on a specified date.

The treatment of stock rights on the stockholder's books was discussed in Chapter VII. Here attention is directed to the accounting of the corporation.

When the rights are issued no general entries whatever are required on the company's books (although a footnote indicating that rights are outstanding is desirable in the balance sheet). When the rights are exercised the proceeds should be recorded in the capital accounts precisely as in the case of any original issue. Rights which stockholders

allow to lapse are canceled and the corresponding shares are sold—if desired—to outsiders. The M Co., for example, has outstanding 100,000 shares of no-par stock with a stated and paid-in value of \$5 per share. At this point the Company offers stockholders the right to subscribe for three shares of new stock for each ten shares held, at a price of \$5 per share, payable in cash. Warrants representing subscription rights for 30,000 shares are issued. Rights expire unless exercised in thirty days. Within the prescribed period warrants are received covering 29,000 shares with accompanying checks totaling \$145,000. Of the balance of available stock 500 shares are sold to outsiders at \$5 per share. Certificates are issued for 29,500 shares. In summary form the appropriate entries are:

Upon issue of rights			
(Entries only in subsidiary records)			
Upon receipt of subscription money, including proceeds from outside sales			
Cash . . . . .		\$147,500	
Stock Subscriptions (also subsidiary accounts) . . . . .			\$147,500
Upon issue of stock			
Stock Subscriptions (also subsidiary accounts) . . . . .		147,500	
Capital Stock (also stock ledger) . . . . .			147,500

Rights may be issued to stockholders of one class permitting them to subscribe for stock of another class. The accounting on the corporation's books in this case may well follow the simple procedure outlined above. It is important to avoid confusing the rights referred to here with subscription warrants attaching to an original issue of stock which account for a part of the total issue price.

Where issued in the names of particular parties warrants must be recorded in terms of such names on the books of the company in the same manner as stock certificates. In this connection use of a distinct subsidiary ledger may be advisable, particularly where transfers are numerous. The corporation often endeavors to facilitate the transfer of fractional warrants for the convenience of shareholders.

**Relation of Stock Rights to Surplus.** Where rights are issued by companies with listed securities the subscription price attached is often set at a point substantially less than the current market value per share of the outstanding stock, as a means of encouraging the stockholders to subscribe. In this situation dilution of the stock equity is involved, as in the case of split-ups and stock dividends, at least from the standpoint of the stockholder. As explained in Chapter VII, the effect is to give the subscription rights themselves an actual market value, and if the shareholder fails to exercise his rights, or dispose of them by sale, the result is a loss of part of the value of his investment.



In some quarters it has been urged that the point of view of the stockholder should be accepted in recording on the books of the company the issue and exercise of stock rights having a market value. It has been argued, that is, that there should be an acknowledgement of an implied capitalization of surplus, the amount being based upon the relation of subscription price and market value per share of the undiluted stock. The M Co., for example, with 100,000 shares outstanding, with a paid-in value of \$6 per share, offers common stockholders the right to subscribe for one share of unissued common stock for each four shares held at a price of \$6 per share. At this time the stock has a market value of \$8 per share, and the surplus account stands at \$150,000. The resolution of the board of directors provides that the warrants expire thirty days from the specified date of issue, and for convenience market value is assumed to remain unchanged throughout this period. The implied market value of the right attaching to each share now outstanding is found by dividing the difference between the present market value per share and the subscription price, \$2, by the number of old and new shares involved in a subscription for one share, which is 5. The result is a figure of 40 cents attaching to each old share, and the right to subscribe for one new share is therefore worth \$1.60. The total value of the rights to subscribe for 25,000 shares is \$40,000. Under these conditions the entries required to set up the market value of the rights issued as an appropriation of surplus and transfer this value to capital when the rights are exercised would be:

(1)	
Earned Surplus . . . . .	\$ 40,000
Subscription Warrants Issued . . . . .	\$ 40,000
(2)	
Cash . . . . .	150,000
Subscription Warrants Issued . . . . .	40,000
Common Stock—Capital Value . . . . .	190,000

At the conclusion of the transaction the number of shares outstanding is 125,000 and the common stock account, including the effect of the entries given, would show a balance of \$790,000. The total book value, including the remaining surplus of \$110,000, would be \$900,000, and the book value per share, \$7.20. This is substantially less than the value of \$7.60 per share attached to the block of 25,000 shares just issued.

Even if it were admitted that the issue of stock rights under certain conditions implies a degree of surplus capitalization it may well be argued that the above treatment is improper in that it is based upon market values and the point of view of the stockholder, particularly as dictated by income-tax regulations. In the case of the thoroughgoing

stock dividend (see discussion in Chapter XXV) the amount of surplus to be capitalized is settled by the board of directors in the light of the amount of unappropriated surplus and the amount and capital value of the unissued stock available, without reference to market values. In accord with this approach it would appear to be more appropriate to determine the amount of earnings to be transferred to capital by comparing the subscription price with either the total book value per share or the recorded capital value per share. In the above example the book value of \$7.50 per share exceeds the subscription price by \$1.50, and the right to subscribe for one new share has a value on this basis of \$1.20 (four times \$1.50 divided by 5). The amount of surplus to be capitalized, accordingly, is \$30,000, and the result is a capital value for the new issue of \$7.20 per share, which is the same as the average book value per share at the conclusion of the transaction. On the other hand if the original capital value of \$6 per share is compared with the subscription price, which is also \$6, it appears that no transfer of surplus to capital is implied in this example.

The general conclusion to be drawn from the foregoing is that no substantial case can be made for the capitalization of surplus, by any method of computation, in connection with the use of stock rights, even where the consideration is much less than market value and the importance of the capital-raising aspect of the transaction is thereby minimized. The issue of dividend stock requires the presence of surplus and is the result of a formal decision to capitalize; the issue of additional stock through rights offered to shareholders does not depend upon the existence of surplus and does not reflect any intention or policy with respect to surplus. In fact the device of permitting shareholders to subscribe pro rata for more stock at "bargain" prices savors more of the split-up than the stock dividend. In a split-up the number of shares is increased without any accompanying contribution by stockholders, and the operation therefore represents nothing more than a dilution of the existing equity; issue and exercise of rights at a subscription price less than book value also results in dilution, but does bring about some increase in paid-in capital. In neither situation is the line separating formal capital from surplus affected.

**Redemption of Preferred Stock.** Senior stock issues are often subject to redemption, at the option of the corporation. Where the call price corresponds to the issue price, and the latter figure has been maintained on the books, the accounting for a retirement of shares is a simple matter. The M Co., for example, has outstanding 1,000 shares of 6% preferred stock issued at par, \$100,000, and callable at any dividend date, with

thirty days' notice, at par. The Company decides to redeem the entire issue and takes action accordingly. The necessary general entries in condensed form are:

Capital Stock Preferred . . . . .	\$100,000	
Cash . . . . .		\$100,000

Similarly if the stock was issued at 105 and is callable at 105—the other conditions remaining unchanged—the entries covering the retirement would be:

Preferred Capital Stock—Par . . . . .	\$100,000	
Preferred Capital Stock—Premium . . . . .	5,000	
Cash . . . . .		\$105,000

(In this example it is assumed that the preferred stock has no equity in surplus as a result of dividend arrearage or other special condition.)

As a rule, however, the specified redemption price exceeds the issue price, and the difference is often substantial. Assume, for example, that the M Co. stock referred to above was issued at par and is callable at \$110 per share. The entries upon redemption are:

Capital Stock Preferred . . . . .	\$100,000	
Loss on Stock Redemption . . . . .	10,000	
Cash . . . . .		\$110,000

The question now arises, what is the nature of the "loss" incurred and how should it be disposed of? A partial answer may be readily given. A loss of this character is clearly a nonoperating item, a charge in no way associated with the utilization of resources in business activity. It represents rather an adjustment of stock equities, a concession the common stockholder is willing to make for the sake of effecting a desired change in the capital structure. It follows that such adjustments should in general be closed to surplus rather than to current expenses or income deductions and should be reported accordingly.

But there remains the question, what surplus is affected by redemption loss? In the presence of both capital and earned surplus is there an option as to how the loss shall be absorbed? This problem, which has been widely discussed in accounting circles in recent years, is considered briefly in the next section.

Stock having an established market may be retired through purchase of shares as offered, although market operations are not as a rule a satisfactory means of redeeming an entire issue. If the price paid for the shares purchased on the market exceeds their acknowledged book value there is a "loss" to the common stock similar to that represented by the excess of call price over book value. Purchase of preferred shares at less than the value appearing in the accounts results in an increase in the equity of the junior stock, a "profit" from stock retirement. The M Co.,

for example, acquires 100 shares of its outstanding preferred stock, with a book value of \$100 per share, at a total cost of \$9,000. The summarized entries are:

Capital Stock Preferred . . . . .	\$10,000	
Cash . . . . .		\$9,000
Profit on Stock Retirement . . . . .		1,000

Profit from retirement, like redemption loss, is a direct equity adjustment rather than an operating item and is preferably reported as an element of surplus. And as in the case of related loss there is a question as to the type of surplus affected.

The retirement of any form of stock reduces the amount of the proprietary equity and thus narrows the cushion of resources protecting the commitments of the creditors. Redemption of preferred stock is not objectionable from this standpoint, however, provided sufficient surplus has been accumulated to offset the resulting reduction in capital. From the standpoint of junior stockholders the redemption of preferred stock is desirable in circumstances in which the dividend requirements of the preferred issue are embarrassing, provided funds can be spared for the purpose. Funds needed in the operation of the business should not be used to retire any security unless redemption is required by contract. Occasionally preferred issues are retired in whole or in part through sinking-fund operations. In many cases the purpose of the redemption is not capital retirement but a reduction of preferred dividend charges through replacement of the outstanding stock with another issue carrying a lower rate. In this situation there are two related transactions—the issue of new capital stock and the use of the funds thereby secured to retire the old issue.

**Absorption of Redemption Loss and Gain.** The treatment of the “loss” on redemption of preferred stock as a charge to earned surplus is a preferred procedure in most situations. In so far as the premium paid is a settlement for dividends in arrears a closing to earned surplus is clearly indicated. Where there is no question of back dividends an absorption of the loss in earned surplus may still be justified on the general ground that earned surplus is the buffer section of the common-stock equity and as such is the first line of defense against all losses, nonoperating as well as operating. Certainly it would not ordinarily be reasonable to reduce the capital stock account by the amount of the loss, leaving an earned-surplus balance intact.

Charging redemption loss to capital surplus (where such surplus is on the books) rather than to earned surplus is sometimes defended on the ground, first, that the entire transaction is a capital adjustment and has no bearing on earned surplus and, second, that to charge earned surplus

may unduly restrict dividends on the junior stock. This position is plausible but on careful examination proves to be without much force. True, the transaction is an equity adjustment but this does not mean that it is confined to the capital aspect of the equities. As to the question of dividends it should be borne in mind that if funds are used to retire preferred stock the possibility of financing dividends in the immediate future is affected, regardless of the status of earned surplus. More important is the fact that in most jurisdictions capital surplus is as valid a legal yardstick for dividend appropriations as is earned surplus, which means that charging capital surplus rather than earned surplus with a redemption premium does not actually afford any protection to the dividend reservoir.

Earned surplus is sometimes specifically appropriated in the form of a special reserve in anticipation of retirement of preferred stock at a premium. Where this is done the charging of the actual premium to such reserve on the occasion of redemption seems to be entirely proper. The manner in which the reserve is disposed of should of course be clearly reported.

If the funds to retire outstanding stock at a premium are secured through the issue of new stock at a premium the charging of the redemption loss to the premium or capital surplus contributed by the new stockholders is not seriously objectionable, especially if the new stock issued is common stock. Such a practice, on the other hand, would violate the general rule that the entire proceeds of a security issue should be reported as such in the balance sheet.

As suggested in the preceding section, any element of premium or paid-in surplus which represents a part of the issue price of the preferred stock being retired should be considered to be eliminated by the process of retirement, at least to the extent of the excess of the redemption or purchase price over par or stated value. Assume, for example, that the R Co. retires 1,000 shares of no-par, class A stock at an average cost of \$65. This stock was issued at \$60 per share, of which amount \$40 was credited to capital and the balance to paid-in surplus applicable to the preference stock. With these conditions the appropriate retirement entries are:

Class A Stock—Capital Value . . . . .	\$40,000	
Class A Stock—Paid-in Surplus . . . . .	20,000	
Loss on Stock Retirement . . . . .	5,000	
Cash . . . . .		\$65,000

In addition entries are needed to close the special loss account to surplus.

If the loss on retirement should generally be construed as a charge to earned surplus does it follow that a gain on retirement is a credit to

earned surplus? A negative answer seems to be appropriate. Earned surplus can be consumed in the retiring of equities but earned surplus is not created by such a process. If, for example, preferred stock which was issued at par, \$100, is retired by an outlay of \$90, the effect is to transfer a portion of the invested equity of the preferred stockholder, as shown by the books, to the equity of the junior stock. But this is a shift of contributed capital and can hardly be said to bring about an increase in earned surplus. Moreover, if the preferred stockholder is willing to accept \$90 for his interest this suggests that from the standpoint of market values the book figures are overstated somewhere along the line and that consequently there may be no real gain to the common stockholder in the transaction.

The same conclusion may be reached even if a part of the book value of the preferred stock being retired is represented by paid-in surplus. If, for example, the preferred stock of the R Co. referred to above were retired at a price of \$50 per share there would be a book gain to the common stock of \$10,000. But release of this portion of capital surplus—based on funds originally contributed by preferred stockholders—to the common stock would not warrant a credit to earned surplus. The proper entries would be:

Class A Stock—Capital Value . . . . .	\$40,000	
Class A Stock—Paid-In Surplus . . . . .	20,000	
Cash . . . . .		\$50,000
Common Stock—Capital Surplus (or more specific title to indicate origin) . . . . .		10,000

Acceptance of the position outlined does not preclude the absorption of the book loss incurred on retirement of a particular block of stock against a book gain realized on retirement of another block. Or one may go somewhat further and suggest that losses and gains on retirements of preferred stock may be reasonably combined in a special continuing account of which the net debit balance is generally interpreted as an offset to earned surplus while a net credit balance is generally viewed as a form of capital surplus.

See discussion of types of surplus and surplus adjustments in Chapter XXVI.

**Retirement of Common Stock—Par-Value Cases.** Specific provisions for redemption are seldom associated with the issue of common stock, as it is to be expected that the residual equity will remain outstanding throughout the existence of the corporation. Circumstances occasionally arise, however, in which a corporation may desire to retire a portion of its outstanding common stock. In a wasting enterprise, for example, capital funds become available in liquid form through the process of

operation and it may be decided to use such funds to purchase the shares of stockholders who are willing to dispose of all or part of their interests. Or a concern which has disposed of a particular plant or other major asset as a step in a program of permanent contraction of activity may find it convenient to use the proceeds to redeem a part of the outstanding stock. In all such cases, of course, the alternative of pro-rata liquidating payments to all shareholders is presumably available, and often is the more convenient and satisfactory procedure.

As in the case of the redemption of preferred stock at book value a retirement of common shares at precisely the amount of the recorded equity, including an appropriate portion of surplus account, gives rise to no problem of equity adjustment. The M Co., for example, has outstanding 10,000 shares of stock with a par value of \$25 per share, and the earned surplus amounts to \$50,000, or \$5 per share. With these conditions the Company acquires 1,000 shares at \$30 per share, precisely the amount of book value. The condensed entries are:

Capital Stock . . . . .	\$25,000	
Earned Surplus . . . . .	5,000	
Cash . . . . .		\$30,000

In this situation there is no question of "profit" or "loss" to either retiring or remaining stockholders. The book value per share before retirement is \$30; the absorption of assets by retirement is at the rate of \$30 per share; the recorded equity of the remaining stockholders stands at \$30 per share.

Assuming a deficit of \$50,000 on the M Co.'s books, and that 1,000 shares of stock are acquired for retirement at a cost of \$20 per share, the entries are:

Capital Stock . . . . .	\$25,000	
Deficit . . . . .		\$ 5,000
Cash . . . . .		20,000

Again there is no adjustment between retiring and remaining stockholders, as the redemption price corresponds exactly to book value. There is a reduction of the amount of the deficit but this reduction is proportionate to the decrease in formal capital; there is no trace of donation or other form of gain in the transaction.

In practice market value and book value rarely coincide and hence the price paid for shares retired commonly is either more or less than the amount appearing in the accounts. The M Co., for example, has outstanding 10,000 shares of stock with a par value of \$25 and a book value of \$30 (the difference being represented by earned surplus). At this point 1,000 shares are acquired and retired at a total cost of \$35,000. Following the conventional procedure the entries are:

Capital Stock . . . . .	\$25,000	
Earned Surplus . . . . .	10,000	
Cash . . . . .		\$35,000

But here this treatment may be objected to on the ground that the nominal disadvantage suffered by the remaining shareholders is not disclosed. To retire a book equity of \$30,000 the assets of the corporation are utilized in the amount of \$35,000 which means a concession to the retiring stockholders of \$5,000. To segregate this "loss" the necessary entries are:

Capital Stock . . . . .	\$25,000	
Earned Surplus . . . . .	5,000	
Loss on Stock Retirement . . . . .	5,000	
Cash . . . . .		\$35,000

By this procedure the book value of the retired stock, including applicable surplus, is canceled, and the difference between this value and the amount expended is reported as a special "loss" or equity adjustment.

Similarly, if the Company paid only \$28 per share for the stock retired, with other conditions as before, the entries under the conventional procedure would consist of a charge of \$25,000 to capital stock, a debit of \$3,000 to surplus, and a credit to cash of \$28,000. But here a book equity of \$30,000 is eliminated by an expenditure of \$28,000, with a resulting book advantage to the remaining stockholders of \$2,000. The entries necessary to isolate this "profit" are:

Capital Stock . . . . .	\$25,000	
Earned Surplus . . . . .	5,000	
Profit on Stock Retirement . . . . .		\$ 2,000
Cash . . . . .		28,000

Assuming again an outstanding stock of 10,000 shares with a par value of \$25 each, and a deficit of \$50,000, and assuming further that 1,000 shares are retired at a cost of \$22 per share, the transaction may be recorded by crediting to deficit account the difference between the par value of \$25 per share and the cost of \$22. Or the entries may be elaborated to provide for segregation of the amount paid in excess of book value, as follows:

Capital Stock . . . . .	\$25,000	
Loss on Stock Retirement . . . . .	2,000	
Deficit . . . . .		\$ 5,000
Cash . . . . .		22,000

Similarly, if the Company paid only \$15 per share, with other conditions unchanged, it would be possible to emphasize the "profit" to the remaining shareholders by the following treatment:

Capital Stock . . . . .	\$25,000	
Deficit . . . . .		\$ 5,000
Profit on Stock Retirement . . . . .		5,000
Cash . . . . .		15,000



If the difference between the book value of common stock retired and the amount paid to the retiring stockholders is segregated as indicated above there remains the question of disposing of the resulting adjustment. The book profit or loss arising in such transactions does not represent a shift from one class of stock equity to another, as does the adjustment arising from redemption of preferred stock; it expresses, rather, a nominal concession realized by either the retiring or the remaining group of common shareholders. The amount of the adjustment, therefore, must be closed out either to surplus or capital account (or be viewed as attaching to one of these elements). If the "profit" or "loss" on retirement is closed to earned surplus or to deficit (referring to the above examples) the net effect of the transaction in each case is precisely that resulting from the treatment under which there is no segregation of the adjustment in the first place. If, on the other hand, the "profit" is construed as a type of capital surplus and the "loss" as an offset to capital—in the case where earned surplus was on the books—the effect in the one instance is an informal capitalization of that portion of the retiring stockholders' equity for which no payment was made and in the other instance an implied reduction in the capital of the remaining shareholders to the amount of the nominal donation made to the retiring group. On the whole this line of interpretation seems less reasonable than that which results in absorption in earned surplus. (See, however, discussion in following section). For the cases in which there is a deficit on the books the net effect in any event can hardly be viewed otherwise than as an adjustment of the recorded deficit by the amount of the difference between par value and the cost of the stock (ignoring the possibility that such difference might exceed the total deficit). The general conclusion to be drawn is that although the more elaborate treatment serves to emphasize the extent of the shift of book value from one group of stockholders to the other the condensed procedure is not objectionable provided there is full disclosure of the character of the transaction in connection with the financial statements.

**Surplus from Stock Retirement.** A special situation to which attention should be called is found where a block of stock is retired at less than par value despite the presence of earned surplus on the books. Here there is a *net* increase in surplus account and in some instances the amount is large. The M Co., for example, has outstanding 10,000 shares of stock with a par value of \$25 each. The earned-surplus account stands at \$50,000. Owing to depression conditions the stock is selling at an unusually low price and the management decides to use a portion of available funds to retire stock. Accordingly 1,000 shares are acquired

over a period of time at an average price of \$10 each. The summarized entries under the net procedure are:

Capital Stock . . . . .	\$25,000	
Surplus from Stock Retirement . . . . .		\$15,000
Cash . . . . .		10,000

A surplus of this character cannot be viewed as profit or earned surplus. If so reported it would mean the showing of a substantial increase in earned surplus based entirely on a reduction in formal capital in excess of cash expended which was itself the result of the unfavorable prospects of the company as reflected in the low price for the stock. Clearly a surplus created in this manner must be viewed as a form of capital adjustment.

If the more elaborate treatment were employed in this case the original entries would be:

Capital Stock . . . . .	\$25,000	
Earned Surplus . . . . .	5,000	
Profit from Stock Retirement . . . . .		\$20,000
Cash . . . . .		10,000

In closing the "profit" item the following entries would then be required:

Profit from Stock Retirement . . . . .	\$20,000	
Earned Surplus . . . . .		\$ 5,000
Surplus from Stock Retirement . . . . .		15,000

The net effect is evidently the same as under the condensed procedure.

Similarly a deficit might be entirely eliminated and a surplus created by retirement of shares at a price substantially less than par. Assume, for example, that the M Co. has outstanding 10,000 shares of stock with a par value of \$25 each, and that there is a deficit on the books of \$5,000. At this time the Company acquires and retires 1,000 shares at a total cost of \$15,000. In summarized form the net entries are:

Capital Stock . . . . .	\$25,000	
Deficit . . . . .		\$ 5,000
Surplus from Stock Retirement . . . . .		5,000
Cash . . . . .		15,000

Even this treatment may be objected to as not sufficiently conservative. Query, can an operating deficit be eliminated by the purchase of shares? A possible treatment would retain the deficit without adjustment (or absorbed in proportion to the percentage of stock retired) and set up the special surplus in correspondingly larger amount.

**Retirement of No-Par Common Stock.** In general the retirement of no-par stock presents the same questions as the retirement of par-value stock. In the case of no-par issues, however, the practice of crediting

a substantial portion of total proceeds to capital surplus makes the problem somewhat more involved. The M Co., for example, has outstanding 10,000 shares of capital stock with a stated value of \$5 and a total paid-in value of \$25 per share. The earned surplus stands at \$50,000. Under these conditions the Company retires 1,000 shares at a total cost of \$25,000. The net entries are:

Capital Stock—Stated Value . . . . .	\$ 5,000	
Paid-In Surplus . . . . .	20,000	
Cash . . . . .		\$25,000

With conditions the same except that the cost of the retired stock is \$30,000 the net entries are:

Capital Stock—Stated Value . . . . .	\$ 5,000	
Paid-In Surplus . . . . .	20,000	
Earned Surplus . . . . .	5,000	
Cash . . . . .		\$30,000

Assuming a cost of \$35,000 the entries are the same except that the debit to earned surplus and the credit to cash are increased by \$5,000. Generalizing from the three examples leads to the rule that as long as the price paid for the retired stock is as large as or larger than the total paid-in value, such paid-in amount—like par value in the case of par stocks—shall be entirely eliminated. It would of course be possible to cancel only stated value and leave paid-in surplus intact except as earned surplus proved insufficient to absorb the difference between stated value and retirement cost but such a procedure seems less reasonable than the scheme recommended. The legal measure of invested capital may be confined to stated value, but the total amount paid in is a more significant gauge for purposes of financial administration.

If the foregoing suggestion is sound the rule which should be applied when the cost of the retired stock exceeds stated value but is less than the amount paid in can be readily stated: cancel stated value and charge the balance of the cost to paid-in surplus. For example, if the M Co. stock referred to above cost only \$20 per share the net entries are:

Capital Stock—Stated Value . . . . .	\$ 5,000	
Paid-In Surplus . . . . .	15,000	
Cash . . . . .		\$20,000

It also follows that where the cost of the no-par stock retired is less than stated value the difference is a credit to capital surplus rather than earned surplus.

The possibility of elaborating the entries in such a manner as to trace the nominal concession made by either the retiring or the remaining stockholders as a group was sufficiently considered in the preceding sections dealing with retirements of par-value shares.

**Significance of Profit or Loss on Retirements.** At the time that capital stock is issued the value of the stock is measured from the corporation's standpoint by the proceeds received and from the stockholders' standpoint by the amount invested, and as these measures are identical the accounts of the company at date of issue are (or should be) in harmony with the market value of its shares at that point. There is no reason for assuming, however, that the correspondence will persist; in fact there is every likelihood that it will not. Company book values are based primarily on the recorded costs of recognized assets, as modified by accrued depreciation and other offsets. Market values of shares are based primarily on the income prospects of the enterprise, appraised through the interplay of the attitudes of many investors and speculators. Book values, despite all the variations of procedure employed, are generally compiled in a systematic manner and are relatively stable. Market values, reflecting opinions as to business conditions which may change radically overnight, are notoriously variable. For considerable periods, it is true, the trend of book value in the particular case may show some relation to the trend of market value, but in many instances the movements will be found to run in opposite directions for months or even years at a stretch. It need not be surprising, therefore, that the price paid by a company for a block of its outstanding shares often is considerably above or below the amount of the book value of such shares. In acquiring the shares the corporation has once more contacted the market for the security, but now there may be a sharp divergence between the recorded equity and the amount of assets required to retire such equity.

A minor point may be noted. In acquiring shares the company commonly must employ cash resources, almost the only asset appearing in the accounts at precisely the amount of its value or purchasing power on the market.

In view of the sharp cleavage existing between book value from day to day and market value at corresponding points the comparison of the cost of acquired shares with book values is likely to be misleading. As suggested repeatedly in the foregoing discussion the concession which one group of stockholders seems to be making to another group is more apparent than real. In general it may be assumed that the transaction is carried out on terms which are equally fair to both parties—the corporation representing the remaining stockholders on the one hand and the retiring stockholders on the other. The fact that book value exceeds cost price or vice versa does not mean that either party is realizing a profit or suffering a loss. The difference is simply the number of dollars necessary to reconcile market price with a corresponding slice of the

recorded equity. Neither does it mean that there is anything wrong with either measure. The market value may not be unreasonable from the standpoint of a careful appraisal of the prospects of the enterprise. Likewise the accounts may have been carefully and intelligently compiled. It is of course always possible that current market price is a very temporary phenomenon, based on a tide of opinion which has no very enduring cause. It is also possible that the accounts have not been satisfactorily maintained.

Assuming good accounting and ignoring wild swings in security prices it may be said that the excess of the price of shares over book values rests primarily on two factors: one, the amount of goodwill and other intangibles which reflect the existence of superior earning power; two, appreciation of existing assets which have not been traced in the accounts. Similarly, where book value exceeds market price under the assumed conditions the difference may largely be explained by reference to lack of earning power and declinations in asset value due to price movements not covered by depreciation accruals and other offsets. However, as has been explained in earlier chapters accounting at the best cannot hope to follow all valuation changes in tangible assets, observable or otherwise, or to include continuous and reliable estimates of intangible values.

**Revaluation of the Stock Equity.** When a corporation acquires a block of outstanding stock at a price above or below book value it would be possible to view this contact with the market for securities as a decisive event and to attempt to revalue the entire equity accordingly. The M Co., for example, has outstanding 10,000 shares of stock with a par value of \$25 each. The earned surplus account stands at \$50,000. At this point the corporation acquires 1,000 shares of stock, through purchases on the market, at \$20 per share. According to the procedure outlined earlier the corporation realizes a "profit from retirement," in the form of a net increase in surplus, of \$5,000. If, however, the current market price of the shares is accepted as convincing evidence of what the book value should be, it appears that the total effective book value of the stock before the retirement of shares is only \$200,000 and that a loss of \$100,000 has accrued—in the light of market valuations—which has not been acknowledged. Assuming that the book values of the specific assets considered individually are not improper this accrued loss presumably reflects the amount by which the discounted value of the prospects of the enterprise, as seen by buyers and sellers of securities, exceeds the book value of individual resources reckoned without reference to earning power in the particular setting. To recognize the implied loss in this situation it would therefore be

necessary to set up a blanket contra to resources rather than to adjust particular asset accounts. (To the extent that available data indicated the application of the loss of earning power to specific units of property such units might be written down in appropriate amount.) The entries might take the following form:

Estimated Loss of Capital and Surplus . . . . .	\$100,000	
Allowance for General Revaluation of Resources . . . . .		\$100,000
To accrue loss representing difference between current market price of stock and book value of stock equity		

Then when the shares are acquired the following would be in order:

Capital Stock . . . . .	\$ 25,000	
Earned Surplus . . . . .	5,000	
Estimated Loss of Capital and Surplus . . . . .		\$ 10,000
Cash . . . . .		20,000
To record acquisition of 1,000 shares, with a net book value (including a proportionate part of special write-down) of \$20,000 for \$20,000 in cash		

Under this interpretation there is no semblance of profit or surplus from retirement attaching to the transaction. The retirement of 10% of the stock carries with it 10% of the original book value in the form of capital and surplus and 10% of the previously accrued general loss.

A possible alternative would be to accrue the implied loss only with respect to the block of stock retired. The condensed entries would then be:

Capital Stock . . . . .	\$ 25,000	
Earned Surplus . . . . .	5,000	
Cash . . . . .		\$ 20,000
Allowance for General Revaluation of Resources . . . . .		10,000

While this line of interpretation has intrinsic merit it can hardly be explicitly employed in accounting for stock retirements. Ignoring considerations of law and assuming that a practicable procedure could be worked out—without impairing the usefulness of accounts in other directions—the fact remains that the retirement of a portion of the outstanding stock could seldom be rated as a compelling reason for a complete revaluation of the equity. Certainly the acquisition of a few shares, at what may be a very temporary price, would not be controlling, and even the purchase of a substantial block at an established market or negotiated price would scarcely justify revaluation, particularly where the accounting of the corporation has been on an acceptable basis.

The treatment outlined earlier, under which the difference between book value and market price is handled as an equity adjustment, care being taken to exclude the effect from the reckoning of income, is

usually the more satisfactory. At the same time the interpretation under discussion here is useful in facilitating reasonable understanding of the conventional procedure. In particular it suggests that a credit resulting from transactions in shares and treated as an increase in book surplus is basically a portion of a suspense valuation account necessary to reflect the implied loss in total resources from the standpoint of the market value of the going concern, and that a debit so resulting and treated as a loss or reduction in book surplus is basically a portion of a suspense valuation account necessary to reflect a portion of the implied addition to resources, intangible as well as tangible.

**Treasury Stock—Par-Value Cases.** Stock once outstanding which has been acquired by the issuing corporation and is legally available for reissue is often referred to as "treasury stock." The use of this label is somewhat unfortunate, particularly in that it suggests a sharp line of cleavage between reacquired stock and authorized stock which has never been issued. Nevertheless the usage seems to be firmly fixed in business practice and is generally accepted by accountants.

Treasury stock may consist of shares purchased for retirement but not yet canceled by formal reduction of authorized capital, or of stock held by the corporation with the expectation of reissue at an early date. The latter condition is found where stock is purchased for distribution among employees or customers, or in connection with efforts to influence the price of the shares, or—particularly in "close" corporations—as a means of eliminating a dissatisfied stockholder or placing the shares owned by the estate of a deceased stockholder in new hands. It is desirable that all purchases of shares, with the reasons therefor, should be clearly reported to the stockholders. In general it is questionable practice for a board of directors to use the corporation as a vehicle for the manipulation of the market for its own shares.

A common method of accounting for treasury stock involves the use of a special clearing account to which the cost of the stock purchased is charged. The M Co., for example, buys 1,000 shares of its outstanding common stock on the open market in order to secure a sufficient number of shares to take care of subscriptions by employees who are being encouraged to buy stock through the corporation on the installment plan. The shares are acquired at an average price of \$150 each. The par of the stock is \$100 per share and at this time the earned surplus amounts to \$40 per share. Using a clearing account the immediate entries covering the acquisition of the shares—in summary—are:

Treasury Stock—Cost . . . . .	\$150,000	
Cash . . . . .		\$150,000

Later the stock is reissued at cost price, to fill the subscriptions of employees. In the meantime the clearing account has been retained, undisturbed, and it is assumed that no analysis is required now that the stock has been reissued. With these conditions, and ignoring subscription accounts and other complications, the entries covering the disposition of the treasury shares simmer down to a reversal of those made at the time of acquisition:

Cash . . . . .	\$150,000	
Treasury Stock—Cost . . . . .		\$150,000

There is no serious objection to the use of a temporary account for the cost of treasury shares but something may be said for an analysis of the account for statement purposes at the close of the period and in any event such analysis should be made at the time the shares are reissued or prior thereto. In the example the treatment accorded obscures the effect of the purchase of the stock upon the underlying sections of the stock equity and does not reflect the conditions of reissue. There are really two distinct transactions involved: first, the acquisition of outstanding shares and their return to the status of authorized stock available for issue; second, the issue of authorized stock to particular parties for a consideration agreed upon. Viewed in this way the ideal handling of the disposition of the treasury shares—assuming acquisition to be recorded through a clearing account as shown above—is as follows:

(1)		
Capital Stock Outstanding—Par . . . . .	\$100,000	
Earned Surplus . . . . .	50,000	
Treasury Stock—Cost . . . . .		\$150,000
(2)		
Cash . . . . .	150,000	
Capital Stock Outstanding—Par . . . . .		100,000
Capital Stock Outstanding—Premium (or Capital Surplus) . . . . .		50,000

An alternative treatment would be to charge earned surplus with only \$40,000—the fraction of such surplus attaching to the block of stock acquired—and to set up a “loss from stock retirement” of \$10,000. If this were done and the “loss” were closed to the earned surplus account the net effect would be as shown in the above entries. However, if the “loss” were viewed as an adjustment of capital surplus the final effect would be a charge to earned surplus of only \$40,000 and a net increase in capital surplus of only \$40,000. See consideration of this question in the discussion of stock retirements in preceding sections.

Failure to analyze the treasury stock account is even more questionable if the cost of the shares is more or less than the consideration re-



ceived upon reissue. Assume, for example, that the M Co. acquired 1,000 shares under conditions as described above and later sold (reissued) this stock at an average price of \$160 per share. The following entries will presumably result if the clearing account is not broken down at any stage:

(1)	
Treasury Stock—Cost . . . . .	\$150,000
Cash . . . . .	\$150,000
(2)	
Cash . . . . .	160,000
Treasury Stock—Cost . . . . .	150,000
Profit on Sale of Treasury Stock . . . . .	10,000

This treatment is not satisfactory. In the first place, there can be no profit or loss realized upon the issue of shares of stock by the corporation, regardless of the previous history of such shares. If any adjustment of equities is involved in such a situation it occurs in connection with the *acquisition* of the shares, not in connection with their *reissue*. When stock is issued the invariable rule should be to credit the entire proceeds to capital account (including premium or capital surplus). Some improvement of the treatment results if the "profit" item is closed to capital surplus, but the result is still unacceptable. The stock equity accounts should clearly reflect the conditions under which the shares were reissued, not the conditions of original issue with a modifying adjustment. For the example given the ideal entries—retaining the use of the temporary account—are as follows:

(1)	
Treasury Stock—Cost . . . . .	\$150,000
Cash . . . . .	\$150,000
To record acquisition of 1,000 shares of treasury stock at average price of \$150	
(2)	
Capital Stock Outstanding—Par . . . . .	100,000
Earned Surplus . . . . .	50,000
Treasury Stock—Cost . . . . .	150,000
To apply cost of treasury stock to underlying sections of stock equity	
(3)	
Cash . . . . .	160,000
Capital Stock Outstanding—Par . . . . .	100,000
Capital Stock Outstanding—Premium (or Capital Surplus) . . . . .	60,000
To record issue of 1,000 shares of treasury stock at average price of \$160	

Similarly, when treasury shares are reissued at less than cost there is no "loss" on reissue. The adjustment of equity accounts, if any, is found by comparing cost with the book value of the shares at the time of acquisition. Then reissue is handled in the same manner as original issue.

As in the case of the outright redemption or retirement of shares the accounting for treasury stock should not result in a net increase in earned surplus. That is, if treasury shares are acquired at less than the capital value shown on the books the difference should be reported as a form of capital surplus.

There is a compromise handling of the clearing account which has advantages in some circumstances. This consists of retaining as a balance in such account only the par value of the treasury shares, with the difference between such value and the cost of shares acquired appropriately disposed of through surplus account. If this is done the special account is closed out when the shares are reissued, and the net effect is the same as that which results from charging the capital stock account with the par of shares acquired and crediting such account with the par of shares reissued.

Preferred shares as well as common stock may be purchased for the "treasury." In this case the possibility of an adjustment of equity between classes of stock is an added reason for insisting upon a complete analysis of the effect of the acquisition of the preferred shares. See discussion of redemption of preferred stock earlier in this chapter.

**Treasury Stock—Legal Aspects.** In the foregoing discussion the position is taken that treasury stock—shares acquired and held by the issuing corporation—have substantially the same status as shares which are authorized but have never been issued. This interpretation is unquestionably in accord with the essential financial conditions present, and tends to discourage misleading presentations of the capital and surplus adjustments associated with transactions in company shares. On the other hand treasury stock has certain distinctive legal characteristics as compared with unissued shares, and in any consideration of the significance of such stock these characteristics should not be neglected.

In the first place, as suggested in the preceding chapter, there is some ground for the opinion that shares once outstanding may pass through the issuing company's "treasury" without change in status with respect to the measurement of assessable discount. In so far as this view is sound it follows that the person acquiring treasury shares once issued fully paid will not be held liable for discount if the reissue price is less than par. Second, presumably treasury shares may be reissued by the company without a pro-rata offering to the stockholders; that is, the right of preemption does not apply to such shares. Treasury stock, moreover, may be issued without the formal approval of stockholders which is generally required in the process of putting out shares which are authorized but have never been issued.

The question is, do these peculiarities require the conclusion that

treasury shares are fundamentally different from unissued shares? Answer in the negative is justified. Treasury shares like ordinary unissued shares represent a section of authorized stock which is not and may never be outstanding. The intention may be to reissue but there is no requirement to this effect; in any event the immediate status of the stock is not affected by prospect of issue. Treasury stock has no voting rights and is not outstanding for the purpose of defining voting percentages. No subscription rights attach to treasury shares and such shares are not entitled to dividends in any significant sense (although it is true that corporations sometimes indulge in the formality of declaring dividends on treasury stock). Treasury stock, to sum up, represents shares which have been recalled from the hands of shareholders and returned to the status of authorized but unissued stock in all major respects.

In some jurisdictions the power of the corporation to acquire its own shares is restricted by specific statutory requirements. An important type of restriction from the accounting standpoint is that which limits to the amount of earned surplus either the cost or the capital value of outstanding stock which may be acquired from corporate funds. There has been a great deal of discussion of the accounting procedure which should be employed in this connection and some untenable suggestions have appeared. The effect of such restrictions on surplus is dealt with in Chapter XXVI. Here it is sufficient to note that the treatment of treasury stock outlined above is in general not in conflict with corporate statutes.

The significance of treasury shares is further considered in connection with the discussion of presentation in statements, later in this chapter.

**Treasury Stock without Par Value.** Most of the foregoing discussion of treasury stock applies to no-par as well as par-value issues. Nevertheless it is advisable to give brief attention to the handling of acquired stock without par value.

The M Co., for example, has outstanding 100,000 shares of no-par common stock represented by a stated value of \$10 per share, an equal amount of paid-in surplus, and an earned surplus of \$5 per share. The Company now buys 1,000 shares for the corporate treasury at a cost of \$30 per share. Later these shares are reissued at \$35 per share. How should these transactions be handled?

If a treasury stock account is charged with the entire cost of the stock and upon reissue this account is directly closed with no analysis into underlying components the net effect upon the stock equity accounts is an increase in paid-in surplus of \$5,000. As in the case of par-value stock this treatment is far from satisfactory. Upon reissue if not earlier

the cost of the treasury stock should be broken down as shown by the following:

Capital Stock—Stated Value . . . . .	\$10,000	
Paid-In Surplus . . . . .	10,000	
Earned Surplus . . . . .	10,000	
Treasury Stock—Cost . . . . .		\$30,000

Then reissue should be recorded as follows:

Cash . . . . .	\$35,000	
Capital Stock—Stated Value . . . . .		\$10,000
Paid-In Surplus . . . . .		25,000

All of these entries, evidently, might be boiled down to the following:

Earned Surplus . . . . .	\$10,000	
Cash . . . . .	35,000	
Treasury Stock—Cost . . . . .		\$30,000
Paid-In Surplus . . . . .		15,000

As in the handling of outright retirements of no-par stock the sound approach to the recording of transactions in treasury shares is that which regards the total of stated value and paid-in surplus as capital. Thus the actual or implied effect of the purchase of shares for the treasury is an offsetting of the stated value and paid-in surplus to the extent of the total paid-in value of the acquired shares or the cost of the shares, whichever is the smaller, and of earned surplus to the extent that the cost exceeds the paid-in value.

If it is desired to maintain the treasury stock account during the period of holding as an offset to capital account alone the portion of cost assignable to earned surplus should be absorbed, but there is little point to a reduction of the balance to the amount of stated value as opposed to total amount originally paid in.

**Treasury Stock in Statements.** How should treasury stock be shown in the statements? Ideally, the entire cost of the stock should be broken down and applied to the underlying elements for statement purposes, substantially as in the case of retired stock, with the existence of the treasury shares indicated by parenthetic notation or footnotes. If this is not done a generally satisfactory presentation is that which exhibits the cost of the stock in the balance sheet as a contra to the total of stock equity as otherwise determined. (See Chapter I.) An alternative appropriate to some circumstances is the absorption in earned surplus of the difference between cost and par or capital value (preferably including paid-in surplus) and the showing of the balance as a contra to the total amount of capital nominally outstanding. In this connection it should again be recalled that if shares are acquired at a cost of less than total

capital value as recorded the difference should not be treated as earned surplus.

The still common practice of showing the cost of treasury stock as an asset in the balance sheet should be roundly condemned. Authorized stock in the hands of the issuing corporation is never a recognizable resource, whatever its origin; there is no distinction from this standpoint between unissued shares, donated stock, and purchased stock. Shares in any form that are available for issue represent merely a means of raising capital, not actual, realized property. The fact that treasury stock is acquired by purchase, through the outlay of cash, does not afford a valid basis for the conclusion that it constitutes an asset. The use of the term "purchase," indeed, is misleading in this connection. By buying stock the corporation in effect is reducing the outstanding equity, not obtaining an asset. The intention to reissue, moreover, does not justify any other interpretation. A corporation may retire a seasonal bank loan with the expectation of borrowing again shortly, but this does not justify treating the acquired note, secured through actual cash payment, as an asset. An established line of credit is a very desirable condition but prior to the acquisition of funds there is no asset to be accounted for. Purchase and reissue of outstanding shares, no matter how closely tied together, are two distinct transactions—(1) reduction of truly outstanding shares and (2) issue of authorized shares—and should be dealt with accordingly.

Treasury stock, like any other shares in the hands of the issuing company, may be retired and canceled by appropriate formal action. If such shares represent recognizable corporate property it follows that the act of cancellation destroys good assets—but this is obviously absurd. In a wasting enterprise a large portion of the outstanding stock might be purchased over a period of years from capital funds liberated through operations and the shares so acquired might be held in the treasury for possible reissue in the event the management decides to undertake the exploitation of new properties. If the treasury shares are an asset it follows that the company has been able to liquidate a major part of the investment in property without reducing its total assets—another absurdity.

The view that treasury stock is an asset, although entirely untenable, dies hard. After listening to a statement of the fallacy of such doctrine the proponent usually replies about as follows:

No doubt you are right, for the great majority of cases, but circumstances occasionally arise which justify inclusion of treasury shares in current investments on the asset side. The treasurer of a corporation, for example, is authorized to invest the backlog of cash funds in first-class marketable securities and after looking the field over decides that the common shares of the corporation represent the most suitable investment

available. He accordingly buys a block of the outstanding stock. Surely it is appropriate here to treat the stock acquired as a good current asset, a part of net working capital. In fact any other treatment will not show the actual current position of the enterprise. Moreover, any other treatment is inconvenient and unnecessary in view of the fact that the stock will be sold whenever the cash is needed.

Ignoring the question of the propriety of using the corporation's own stock for the purpose of employing cash which may shortly be required for use in operation, it is only necessary in rebutting such argument to point out again that temporarily idle funds may often be used to advantage to reduce current liabilities and that an asset is not thereby acquired. In other words, the fact that liquid funds have been wisely utilized, and may be made available again when needed, does not force the conclusion that they have been invested in assets. The reference to convenience need not be taken seriously.

The case for reporting stock subscriptions as an asset is sometimes confused with the question of the nature of treasury stock. As pointed out in an earlier chapter, binding and dependable subscriptions for stock are generally rated as an asset, with the proviso that the amount must be segregated on the balance sheet. Whatever the merits of this position it may be insisted that if there is a recognizable asset involved it is represented by the subscription accounts, not by the shares of stock available for issue.

If preferred stock has been acquired through sinking-fund operations the shares still rate as a contra to the amount nominally outstanding, not as an asset, and this conclusion is not altered where the stock is held by a trustee. Corporate funds have been utilized by the purchase of the stock and the shares acquired are no longer effectively outstanding. The situation here is much the same as that which arises when outstanding bonds are purchased for sinking-fund account. (See Chapter XXVIII.) Similarly if a pension fund or other special fund is invested in company shares the cost of such shares should not be reported as an asset of the issuing corporation. Taking this position, it may be added, does not preclude the treatment of the cost of the shares as a resource of the fund in any statement in which the fund is dealt with as a separate entity.

Nor does the carrying out of the rigmarole of declaring and paying dividends on treasury shares alter the status of the stock. If such action is undertaken and recorded in the accounts the amount of dividends "earned" by the company on its own shares must be credited to the total of dividend charges and not reported as income.

**Taxability of Stock Adjustments.** Attempts to treat the difference between the cost of acquiring outstanding shares and their book value,

or the difference between the cost of acquiring shares and the proceeds of reissue, as taxable income do not rest on a sound foundation. As explained above, the purchase of shares at less than book value implies the existence of a form of accrued loss which has not been recognized under conventional accounting procedure; there is no vestige of profit involved. By expending funds to acquire shares, moreover, the corporation has reduced liquid resources and the power to pay taxes of any kind. In cases where the excess of book value (properly determined) is most marked the depressed price of the shares indicates impaired earning power and danger of insolvency and liquidation; in this situation the absurdity of attempting to levy income taxes on stock adjustments should be apparent.

If shares were acquired at less than their fair market value, as a result of misrepresentation or coercion, the corporation, as the representative of the remaining shareholders, might be said to realize an advantage. The amount of such advantage, however, would be measured by the difference between the price paid and a fair price rather than by the difference between the price paid and book value. Indeed a form of profit in this sense might arise when the adjustment on the books was in the opposite direction. Suppose, for example, that the M Co., with 10,000 shares of stock outstanding with a total par value of \$250,000 and with an earned surplus of \$50,000, acquires 1,000 shares of stock at a cost of \$40 per share when the fair value amounts to \$50 per share. Here the retiring stockholders are exploited by the remaining stockholders to the amount of \$10,000. On the books, however, there is a net shrinkage of \$10 in the equity per share of the remaining stockholders, if the transaction is conventionally recorded, as a result of paying \$40 per share for stock with a book value of only \$30 per share.

In most cases it is quite unreasonable to assume that either the corporation or the retiring stockholder is in a position to compel the carrying out of the transaction on a noncommercial basis. Transactions between corporation and stockholder, like transactions in general, may generally be interpreted as fair exchanges.

In the case of the acquisition of outstanding preferred shares at less than their book value the impropriety of attempting to treat the difference as taxable income is somewhat less obvious. If the book value of the preferred stock be viewed as a definite obligation, for which the residual stock equity is responsible, the elimination of this obligation at less than the acknowledged amount appears to bring about an increase in the equity of the common stock. However, it should be remembered that the par or other representation of the preferred stock is not usually a definite obligation, maturing at a set date. The preferred stock is

rather a proprietary equity with certain definite preferences with respect to income and assignment of resources in the event of liquidation. If the preferred stock may be acquired at less than book value this usually means—as in the case of common stock acquisitions—that the portion of the fair present worth of the enterprise which measures the equity of the preferred stock is less than the recorded amount of such equity. And under this view there is clearly no profit to common shareholders resulting from the retirement of preferred stock at fair market value.

There is no excuse whatever for any proposal to treat the excess of the reissue price of treasury shares over their cost as taxable income. As has been explained, treasury shares are basically unissued stock, and the conditions of the issue of such stock have no essential relation to the conditions of acquisition. To treat a portion of the reissue price of treasury shares as taxable income amounts to including a part of the funds invested by the new stockholder in income account.

**Conversions.** Stock is sometimes issued with the privilege of conversion into another class of stock under prescribed conditions. The M Co., for example, has outstanding 1,000 shares of preferred stock which is convertible on any dividend date for five years from date of issue, at the option of the shareholder, into the Company's no-par common stock at the ratio of five shares of common for one of preferred. There are 90,000 shares of common stock outstanding. The preferred stock was issued at par, \$100 per share, and appears on the books at that figure; the outstanding common stock was issued at \$15 per share, of which amount \$5 per share is carried as capital surplus. Shortly before the right to convert expires all of the preferred shares are presented for conversion and common shares are issued in exchange therefor as agreed. At this time the common stock has a book value of \$30 per share and a market value of \$35. The market price of the preferred stock, as might be expected, is \$175 per share. How should the conversion be recorded on the corporation's books under these conditions? The usual treatment is to base the issue price of the security being issued upon the book value of the security being retired. Applying this method to the example results as shown by the following summarized entries:

Preferred Capital Stock. . . . .	\$100,000	
Common Stock—Stated Capital. . . . .		\$50,000
Common Stock—Capital Surplus . . . . .		50,000

This treatment ignores the market price of the preferred shares, as well as both the book value and market price of the common stock issued. It may be urged, with considerable justification, that the issue price of the common stock and hence the cost of retiring the preferred



is measured by the prevailing market value of the common stock. Had the Company attempted to acquire preferred shares by purchase at this time the cost, presumably, would have been \$175 (5 times \$35) per share. Or had the Company attempted to issue a block of common stock at this time the amount received, presumably, would have been around \$35 per share; and the proceeds might then have been used to purchase the preferred shares. Accepting this view the appropriate entries to record the conversion are:

Preferred Capital Stock . . . . .	\$100,000	
Loss on Stock Conversion . . . . .	75,000	
Common Stock—Stated Value. . . . .		\$ 50,000
Common Stock—Capital Surplus . . . . .		125,000

The final result of this procedure, evidently, is the capitalization of earned surplus in the amount of \$75,000. This reflects the participation of the holders of the preferred stock, by means of the conversion privilege, in the increased value of the common stock.

If the book value of the common stock rather than market price were used to measure the issue price of the additional shares the amount of the charge to earned surplus would be reduced to \$50,000. In general an established market price for the class of stock issued is better evidence of true issue price than the book value of such stock at the time of issue.

A refunding operation, like a conversion, is preferably viewed as a combination of two distinct transactions: (1) the retirement of the old security; (2) the issue of the new stock. This means that the issue price of the new stock should be determined by its market value—the total amount which would be received if the stock were issued for cash—and that such implied issue price should be viewed as the cost of retiring the old stock.

**Nominal Reorganization.** The term “reorganization” has come to be applied to adjustments of the corporate structure ranging from a mere recapitalization with or without a change in the identity of the company to such undertakings as the refinancing of an embarrassed enterprise or complete absorption of a particular concern by an entirely distinct organization. In a nominal reorganization the assets and usually the liabilities are unaffected, there are no changes in staff or character of operations, and the result is little more than a relabeling of the stock equity.

For example, the R Co., a Delaware corporation, is organized to succeed the R Co. of Michigan. The authorized capital of the predecessor corporation is 100,000 shares of common stock with a par value of \$100 per share, and all shares are outstanding. The new company has an

authorized capital of 2,500,000 shares of common stock without par value. At the time of the reorganization the earned surplus of the old company stands at \$5,000,000. All of the assets and liabilities are taken over by the new company, and operations are continued without interruption. Common stock of the Delaware corporation is issued to the common stockholders of the Michigan company in the ratio of twenty shares of no-par stock for each share of old stock. The new stock is quoted on the market at \$10 per share, "when and if issued." It is decided to set up a stated value for the new stock of \$5 per share. Assuming that the "reorganization" is carried through as planned, including the dissolution of the Michigan company, and that the old books are continued in use, the general entries summarizing the exchange of securities are:

Common Capital Stock—Par . . . . .	\$10,000,000	
Common Capital Stock—Stated Value . . . . .		\$10,000,000

According to these entries the transaction has about the same character as a split-up. The total capital value of the outstanding stock remains at \$10,000,000 and the surplus account is not affected. The fact that the no-par common stock has a market price of \$10, or a total indicated value for the shares outstanding of \$20,000,000, does not justify the use of this figure as a measure of the recognizable value of the new stock. Only one class of stockholders is involved; there is no change in the proportionate interest of any stockholder; the change in corporate entity is nominal. In these circumstances there is no implied revaluation of corporate resources and no explicit or implied transfer from surplus to capital or vice versa.

Reorganizations which leave the beneficial interests in substantially the same hands as before, and in which the exchanges of securities are not accompanied by any payments or distributions of cash or other property, do not in general give rise to gain or loss to any of the parties from the standpoint of Federal income taxation.

**Reorganization and Refinancing.** The S Co., to illustrate, has been operating at a loss for some time and is greatly in need of additional working capital. The Company is also embarrassed by a capital structure in which is included 10,000 shares of 7% cumulative preferred stock, par \$100 each, on which dividends are in arrears to the amount of \$38.50 per share, and 6% debenture bonds totaling \$1,000,000. Current liabilities amount to \$500,000. The common stock consists of 200,000 shares with a par value of \$10 each. The books show an accumulated deficit of \$250,000. Set up in condensed schedule form these data appear as follows:

Assets . . . . .	\$4,250,000	Current Liabilities . . .	\$ 500,000
Deficit . . . . .	250,000	Debenture Bonds . . .	1,000,000
		Capital Stock, 7% Preferred . . .	1,000,000*
		Capital Stock, Common . . .	2,000,000
	<u>\$4,500,000</u>		<u>\$4,500,000</u>

\* Dividends in arrears, \$385,000.

At this juncture, to forestall receivership and possible liquidation, a committee is formed to work out a program of voluntary reorganization which will provide additional funds and improve the capital structure. The plan adopted by the committee is as follows:

*Corporate Entity*

No Change

*Capitalization*

1. 1,000,000 shares of no-par common stock.
2. 50,000 shares of 6%, noncumulative preferred stock, par \$50 each.
3. No bonds.

*Exchange of Securities*

1. 20,000 shares of 6% preferred stock and 20,000 shares of no-par common stock for outstanding bonds.
2. 27,700 shares of 6% preferred stock for 10,000 shares of 7% preferred.
3. 662,500 shares of no-par common for 200,000 shares of old common stock (see requirement as to additional common stock, below).

*New Capital*

1. Issue of 200,000 shares of no-par common stock to present common stockholders at \$2 per share—as a condition of the reorganization.
2. Issue of balance of preferred stock, 2,300 shares, and of the common, 117,500 shares, on the market as funds are needed.

There is no active market at this time for any of the securities of the Company, but there are indications that \$2 per share is a fair price for the new common stock, and it is decided to accept this figure as stated value per share.

Assuming that this plan is carried through immediately precisely as outlined, down to the point of the marketing of the balance of the preferred and common shares authorized, and ignoring reorganization costs and other complications, the required general entries are:

(1)

Debenture Bonds . . . . .	\$1,000,000	
Common Stockholders—Reorganization Account . . . . .	40,000	
Capital Stock 6% Preferred . . . . .		\$1,000,000
Common Capital Stock—Stated Value . . . . .		40,000
To record exchange of bonds for new preferred and common stock and to charge clearing account with common stockholders with book value of new common stock issued to bondholders (details per reorganization plan)		

(2)

Capital Stock 7% Preferred . . . . .	1,000,000	
Common Stockholders—Reorganization Account . .	385,000	
Capital Stock 6% Preferred . . . . .		1,385,000
To record exchange of old preferred stock and dividend claims for new preferred stock, and charge to common stockholders for amount of dividends in arrears, not previously booked (details per reorganization plan)		

(3)

Capital Stock Common . . . . .	2,000,000	
Deficit . . . . .		250,000
Common Stockholders—Reorganization Account . .		425,000
Common Capital Stock—Stated Value . . . . .		1,325,000
To record exchange of old common shares for new no-par stock per reorganization plan, with closing of offsets to common stock		

(4)

Cash . . . . .	400,000	
Common Capital Stock—Stated Value . . . . .		400,000
To record receipt of cash of \$2 per share from the holders of old common stock and the issue of 200,000 shares of no-par stock pro rata to such holders		

After posting these entries the condition of the ledger stands as follows:

New Cash . . . . .	\$ 400,000	Current Liabilities . . . . .	\$ 500,000
Assets (as before). . . . .	4,250,000	Capital Stock 6% Preferred . .	2,385,000
		Common Capital Stock—	
		Stated Value . . . . .	1,765,000
	<u>\$4,650,000</u>		<u>\$4,650,000</u>

It should be noted that the amount of 682,500 shares of common stock at \$2 per share just absorbs the book value of the old common stock after deficit and back dividends on preferred are taken into account.

In reorganizations of this character drastic write-downs of property are often a feature.

A reorganization resulting from a technical receivership involves the use of specialized records and reports as required by the legal authority in charge. (See Chapter IV.)

**Merger.** A merger—sometimes included in the definition of reorganization—occurs when one or more going concerns are absorbed by another going enterprise or when two or more such concerns are combined through the medium of a new corporation organized for the purpose. In such a transaction the books of the dissolved company or companies should generally be closed, on the basis of entries adequately reflecting the circumstances, and entries are required on the books of the continuing corporation which show the assets taken over, the liabilities assumed, and the issue of securities in exchange for those absorbed.

For example, the ledger of the S Co., in condensed form, is as follows:

<b>Assets</b> . . . . .	<b>\$5,500,000</b>	<b>Current Liabilities</b> . . . . .	<b>\$1,000,000</b>
		Capital Stock (30,000 shares) . . . . .	3,000,000
		Surplus . . . . .	1,500,000
	<u><b>\$5,500,000</b></u>		<u><b>\$5,500,000</b></u>

At the same time the accounts of the T Co. show:

<b>Stock of S Co. (16,000 shares)</b> . . . . .	<b>\$ 2,800,000</b>	<b>Current Liabilities</b> . . . . .	<b>\$ 3,000,000</b>
<b>Other Assets</b> . . . . .	<b>17,500,000</b>	Capital Stock (800,000 shares) . . . . .	16,000,000
		Surplus . . . . .	1,300,000
	<u><b>\$20,300,000</b></u>		<u><b>\$20,300,000</b></u>

The prevailing market price of S Co. stock is \$189, and that of T Co. stock \$21, per share. The stock of the T Co. is of the no-par type and the shares outstanding were issued for a consideration of \$20 each. The companies are now merged, with the consent of stockholders of both corporations, under the following conditions:

1. All assets and liabilities of the S Co. are acquired by the T Co.
2. Common stock of the T Co. totaling 126,000 shares is issued in exchange for the 14,000 shares of S Co. stock not held by the T Co.
3. The S Co. is formally dissolved.

The essence of this transaction from the standpoint of the T Co. is the issue of 126,000 shares of authorized stock with a market value of \$2,646,000 to acquire the balance of S Co. stock and by this means secure the dissolution of the S Co. and the absorption of its resources and obligations. Condensed entries on the T Co.'s books are:

(1)		
Stock of S Co. . . . .	\$2,646,000	
Capital Stock . . . . .		\$2,646,000
To record issue of 126,000 shares in exchange for 14,000 shares of S Co. stock		

(2)		
Assets . . . . .	6,446,000	
Liabilities . . . . .		1,000,000
Stock of S Co. . . . .		5,446,000
To close investment account on acquisition of assets and assumption of liabilities of S Co.		

In this treatment the assets acquired are set up at cost, ignoring book value to the S Co. Evidently intangibles not previously recognized are involved, or the market value of the tangible resources of S Co. exceeds their book value, or a combination of these conditions exists. In setting up the separate ledger accounts the total value must of course be appropriately spread. The treatment given is clearly justified under the circumstances. The parties to the transaction, essentially the holders of

14,000 shares of S Co. stock on the one hand and the T Co. on the other, are quite distinct, and the exchange ratio conforms precisely to acknowledged market values.

For another example assume that the ledgers of the M Co. and R Co. stand as follows:

M Co.			
Assets . . . . .	\$4,000,000	Liabilities . . . . .	\$ 500,000
		Capital Stock . . . . .	2,500,000
		Surplus . . . . .	1,000,000
	<u>\$4,000,000</u>		<u>\$4,000,000</u>
R Co.			
Assets . . . . .	\$6,000,000	Liabilities . . . . .	\$1,000,000
		Capital Stock . . . . .	3,000,000
		Surplus . . . . .	2,000,000
	<u>\$6,000,000</u>		<u>\$6,000,000</u>

The M R Co. is now organized with an authorized capital of 1,000,000 shares, par value \$10, for the purpose of merging the two existing companies. The stockholders of M Co. receive 350,000 shares in exchange for their holdings, and the stockholders of R Co. receive 500,000 shares. The exchanges are effected and the merger completed, M Co. and R Co. being dissolved. What, under these conditions, is the status of the M R Co.? In the exchanges, evidently, the book value of the stock of each company is accepted as a basis. The transaction, moreover, is confined to the combining of the two companies. These circumstances seem to justify a treatment resulting as follows:

M R Co.			
Assets . . . . .	\$10,000,000	Liabilities . . . . .	\$ 1,500,000
		Capital Stock . . . . .	8,500,000
	<u>\$10,000,000</u>		<u>\$10,000,000</u>

Basing the distribution of new stock upon the relative book values of the constituent companies, without adjustment, would seldom be justified in actual practice. Where established market prices are available the exchange ratios are usually derived from such prices. For example, if the market price of M Co. stock in the above illustration indicated a total value for the equity of \$3,700,000, and the total value of R Co. stock similarly derived were \$4,800,000, equitable treatment of the two groups of stockholders would seem to require delivery of 37/85 of the M R Co. stock to M Co. shareholders and 48/85 to those holding R Co. stock. The market value of M R Co. stock, a new company organized purely to effect a merger of two going concerns, would presumably reflect

the values of the stocks to be received in exchange and hence have no independent significance as a basis of valuation. Where reliable market quotations are not available to determine exchange ratios main reliance must be placed upon estimates of fair values based upon systematic investigation and appraisal.

**Surplus in Reorganization and Merger.** It is sometimes argued that in a reorganization or merger it is not unreasonable to recognize the adjusted surpluses of the constituent companies as surplus on the books of the new corporation. For example, assume that in the last example given above the stock of the M R Co. is without par value, all other conditions remaining unchanged, and that the condition of the new corporation after the merger is reported as follows:

M R CO.			
Assets . . . . .	\$10,000,000	Liabilities . . . . .	\$ 1,500,000
		Capital Stock . . . . .	5,500,000
		Surplus . . . . .	3,000,000
	<u>\$10,000,000</u>		<u>\$10,000,000</u>

Is this treatment sound? In particular is it proper to treat the surplus on the books of the new company as an earned surplus, available for dividend appropriations? On the affirmative side it may be pointed out that, despite the dissolution of the component companies and the creation of a new legal entity, the transaction does not bring about any substantial change in the underlying equities and hence should not be interpreted in the manner suited to an outright sale of properties to new interests. If the original companies have been paying regular dividends it is to be expected that the policy will be continued, and complete elimination of the legal reservoir might be embarrassing in this connection (a point which has especial force where preferred stock is outstanding). On the other side is the important fact that even a merger of this character does bring about a new and distinct entity and it is somewhat absurd for a new enterprise to begin business with a substantial earned surplus. Certainly only where the operating entity and the essential conditions of ownership persist in a very marked fashion can the carrying forward of surplus be countenanced; the fact that a corporation takes over the assets and activities of another company does not, in itself, warrant the assumption that the surplus accumulated by the organization being absorbed is transferable as such. It may be added that wherever conditions are such in reorganization or merger that preservation of the surplus account may be defended the transfer of an accumulated deficit to the books of the new company would be equally justified.

**Liquidation Payments.** Where surplus is completely absorbed payments made pro rata to stockholders must be interpreted as distributions of capital. Such distributions should be recorded in the underlying stock ledger and are chargeable to the capital account in the general ledger. If desired a special contra account may be employed until the process is complete. (See discussion of capital return in wasting enterprises in Chapter XVII.) Where there has been a partial liquidation but additional distributions are not anticipated a formal reduction of capital may well be arranged.

### QUESTIONS

1. Define the "split-up." Does such a transaction require entries in the accounts?
2. Which would you expect to occur more frequently during a prolonged period of depression and low prices on the stock market—split-ups or reductions in number of shares?
3. When rights to subscribe for additional units of the same or another class of stock are granted in connection with the original issue of shares should part of the total consideration received be assigned to the warrants outstanding?
4. Explain the use of stock rights. Does the issue of rights at a subscription price less than the market value of the outstanding shares imply surplus capitalization? Discuss fully.
5. How should "losses" and "gains" arising through redemption of outstanding preferred stock be measured and interpreted? Give illustrative entries.
6. "The premium paid on redemption of preferred stock should be charged to capital surplus wherever possible so as to avoid reducing the earned surplus and jeopardizing dividends on junior stock." Discuss.
7. Under what circumstances may retirement of a portion of the outstanding common stock be considered? Give illustrative entries assuming: (1) presence of earned surplus; (2) presence of an operating deficit.
8. Under what circumstances may an increase in total book surplus result from the retirement of stock? Could such a surplus reasonably be used as a basis for dividend appropriations? Explain.
9. Formulate a general rule to govern the procedure associated with the retirement of no-par shares when stated value, capital surplus, and earned surplus are on the books.
10. When retiring stockholders are paid a price for their shares in excess of book value does this mean a loss to the remaining stockholders?
11. Define "treasury stock." Illustrate the use of a clearing account in this connection. Should such an account be maintained at cost or on some other basis?
12. "No profit or loss can be realized through the issue of treasury shares, although an adjustment of equities may be implied in the acquisition of such shares." Explain and defend.
13. Argue that the reissue of treasury shares is likely to be improperly recorded unless the cost of such shares is broken down into the underlying elements.
14. Give the argument for and against the interpretation of treasury stock as an asset.
15. "In a conversion there are really two transactions: (1) the issue of the new



stock; (2) the use of the proceeds of the new stock to retire the old." Explain, using an illustration.

16. Illustrate the treatment of the stock equity accounts in a nominal reorganization. In a reorganization involving new financing.

17. May the surplus of constituent companies be transferred to the accounts of the continuing corporation in the case of a merger?

18. Discuss the accounting for pro-rata capital distributions.

## XXV

### DIVIDENDS

**Types of Dividends.** In the best usage dividends are pro-rata distributions to corporate shareholders which are appropriated from current or accumulated profits. Dividend appropriations are generally classified in terms of manner or medium of payment, as follows: (1) cash dividends; (2) property dividends; (3) note and bond dividends; (4) stock dividends. The great majority of all dividends are of the first type; cash is the convenient medium of dividend disbursement, from the standpoint of the stockholder as well as that of the corporation. Occasionally securities such as government bonds or the stock of an affiliated company are distributed among the stockholders in the form of a dividend, and instances are known of the apportionment of merchandise and other assets in this manner. Dividends in the form of short-term scrip or notes, with or without interest, are essentially "deferred" dividends, and the use of the long-term notes or bonds of the declaring company means a postponement of the actual distribution of corporate assets for the life of the security issued. Stock dividends, it has often been pointed out, represent a permanent capitalization of dividend funds, and hence can hardly be classed as true dividends.

The Supreme Court has held that stock dividends are not income to the recipient shareholders, basing its opinion primarily on the proposition that such distributions bring about no assignment or transfer of corporate assets to stockholders. Faced with the necessity of passing on the significance of bond dividends, however, which likewise leave the assets of the corporation undisturbed, the Court shifted the vital test of genuine dividend action to effect on "net worth," holding that bonds of the declaring company issued as a dividend are income to the extent of their fair market value as received since their sale does not affect the relative position of the stockholder as such. In a few cases dividends have been declared payable at the option of the shareholder in cash or stock. For income-tax purposes such distributions have been interpreted as cash dividends. In recent years the legal situation has been rendered more confused by the adoption of the theory that dividends paid in stock

of one class to stockholders of another class constitute taxable income to the recipient.

Dividend declarations may be regular or irregular. Special distributions made in addition to a regular appropriation are often referred to as "extras." Taxes on undistributed profits or surplus accumulation tend to promote payment of extras toward the end of the year that are sufficient to absorb the estimated profits. Preferred dividends, as noted in an earlier chapter, may be cumulative or noncumulative. Dividends on preferred are limited to the stated rate except where right of participation is enjoyed.

"Dividends" representing the apportionment of the proceeds of liquidation should not be confused with distribution of profits by the going concern.

**Sources of Dividends.** That the amount of dividends declared should be restricted to the earned surplus is the position strongly endorsed by accountants. In general, however, dividends may be legally appropriated from premium or paid-in surplus, and some jurisdictions permit the use of surplus from revaluation, unrealized appreciation, as a basis for stock dividends. Corporations usually find it easy, moreover, to create a legally recognized surplus out of capital account by reducing par or stated value.

As a basis for dividend appropriations earned surplus may be broadly defined as the resultant of all realized gains and losses, including non-operating and extraordinary items, with the possible exception of adjustments due to retirement or conversion of outstanding securities. Additions to reported earned surplus resulting from correction of past errors—restoration of asset values improperly charged to maintenance, collection of receivables previously written off, adjustment of excessive depreciation allowances, etc.—are likewise available for appropriation, as are amounts properly returned to free surplus from reserves for contingencies and other genuine surplus reservations. Full disclosure of source is of course desirable in connection with dividends derived either from capital gains and other unusual profits or from surplus adjustments. Cash dividends should never be based on credits arising from revaluations and there is little justification for the capitalization of such credits by means of stock dividends. If unrealized appreciation is absorbed by stock dividend declarations the transfer of the increase in value to earned surplus if and when it is realized becomes impossible, with the result that the income and surplus accounts are not correctly stated; the effect, in other words, is the capitalization of actual earnings which have never been reported as such. (See discussion of realized appreciation in Chapter XIV.) The appropriation of regular dividends from capital surplus,

whether originally paid in or brought about by a reduction in the acknowledged capital account, is merely a disguised liquidation of the stockholders' investment, and deserves the general condemnation accorded by accountants. This does not deny that situations occasionally arise in which a downward revision of legal capital may be justified.

In what order do dividends absorb earnings? Is it a case of "first-in, first-out" or "last-in, first-out," or should some other interpretation be applied? On the whole the most reasonable and useful assumption is that which views each dividend appropriation as a charge, first, to the current profits—to the extent to which such profits have been ascertained—and, second, to the profits of prior years. This assumption is particularly desirable in statement presentation, as it results in emphasizing the difference—favorable or unfavorable—between the profits of the period and the dividends declared.

**Dividend Policy.** The existence of surplus in general makes dividends legally possible but actual declaration and payment of cash dividends should not result from consideration of this factor alone. Cash is required to make the disbursement and the presence of surplus does not demonstrate that cash is available. If surplus is adequate it would be legally possible—barring special action by creditors—to borrow funds for dividend purposes, but very seldom if ever would such action be practicable or represent good financial policy. Moreover, even if the bank balance is substantial the need for funds to increase inventories, replace or expand plant facilities, or to reduce floating debt may be such as to make immediate dividend appropriation unwise if not out of the question. To pay dividends in the face of an abnormal accumulation of current liabilities, indeed, is tantamount to borrowing funds to make dividends possible. Reports to stockholders should include a clear explanation of the conditions, as those not involved in actual management are prone to misunderstand failure of the directors to declare dividends in the face of surplus accumulation.

In small companies, with a handful of stockholders, dividend payments are often very irregular. On the other hand managements of large corporations whose securities are listed on the exchanges, and with stockholders numbering into the thousands, commonly make a considerable effort to maintain the flow of dividends in order to protect the prestige and credit standing of the enterprise as well as to meet the needs of the rank and file of the investors. The general practice in many such concerns has been to establish a rate of dividend disbursement somewhat under the level of earning power and to recognize the dividend policy as an important consideration in the administration of working capital. Surplus accumulation has a special significance where preferred

stock is outstanding because of the evident desirability of maintaining dividends on the senior issue or issues at the stated rate. Taxes on surplus, as indicated earlier, tend to bring about periodic disbursements corresponding to periodic profits, and thus discourage the policy of stabilizing dividends. Continued surplus taxation at high rates, indeed, would put an effective stop to all surplus accumulation and thus make it impossible, under the present legal situation, for a company to pay any dividends in years in which operations were conducted at a loss.

Cases have arisen in which companies hard pressed for cash have issued dividends in scrip, payable at some future date. If the scrip were readily salable such procedure would be of some advantage to the stockholder in need of funds. The declaration of such a dividend at the regular date may also be less damaging to corporate prestige than outright passing. Ordinarily, however, the use of this device is not advisable.

As a matter of policy should dividends be based on capital gains and other unusual profits? An affirmative answer is justified where the profits are matched by increase in liquid funds and there are no pressing needs for the funds within the business. It is often true, no doubt, that capital gains in large measure reflect a change in the value of money rather than an effective increase in resources in terms of purchasing power, but this condition hardly justifies retention of the funds made available unless major replacements are imminent. Where dividends are based on unusual gains, however, they should be declared and reported as extra or special disbursements, so that there is no danger of misunderstanding among present or prospective investors.

**Surplus as Dividend Reservoir.** The relation of surplus accumulation to dividends requires emphasis, particularly in view of certain common misconceptions. Dividends are *appropriated* from surplus but are *paid* (as a rule) in cash. Surplus is the yardstick or gauge which shows the amount of dividends which may be declared without impinging upon capital, but is not in itself a medium of disbursement. This means that surplus accumulation as a reservoir for dividends in lean years does not actually ensure the ability to maintain the stream of payments to stockholders. The M Co., for example, has the following status on December 31, 1931:

Current Assets . . . . .	\$1,000,000	Current Liabilities . . . . .	\$ 500,000
Fixed Assets . . . . .	5,000,000	Bonds . . . . .	1,000,000
		Capital Stock . . . . .	4,400,000
		Surplus . . . . .	100,000
	<u>\$6,000,000</u>		<u>\$6,000,000</u>

During the next five years profits total \$3,000,000, dividends are paid

in the amount of \$2,000,000, and the bonds are retired. The condition on December 31, 1936, is as follows:

Current Assets . . . . .	\$1,000,000	Current Liabilities . . . . .	\$ 500,000
Fixed Assets . . . . .	5,000,000	Capital Stock . . . . .	4,400,000
		Surplus . . . . .	1,100,000
	<u>\$6,000,000</u>		<u>\$6,000,000</u>

Evidently a million dollars has been added to surplus during this period, but there has been no increase in working capital. For the period 1937-1942 the results of operation are:

1937 loss . . . . .	\$100,000
1938 loss . . . . .	500,000
1939 loss . . . . .	100,000
1940 loss . . . . .	50,000
1941 profit . . . . .	200,000

Can this business pay dividends in the four loss years? The difficulty is apparent. At the end of 1937, the first of such years, the Company has a legitimate surplus of \$1,000,000, but with the regular current position somewhat weakened by the loss suffered it is clear that no substantial sum is available for dividends (except as fixed assets may have been converted into liquid funds). And by the end of 1938 the shrinkage in working capital is such that a dividend declaration is out of the question, regardless of the condition of the surplus account.

The above example represents an extreme condition in that the entire surplus accumulation for a five-year period is matched by utilization of funds to retire the bond debt. At the other extreme is the case where liquid assets are built up to the full amount of retained earnings. For an illustration assume that for the period 1931-1936 the M Co. had accumulated a backlog of cash or marketable securities to the amount of \$1,000,000 instead of retiring bonds, other conditions remaining the same. In this situation payment of a substantial dividend in 1937 would be possible and not unreasonable. In 1938, however, the necessity of conserving working capital in the face of serious losses would again preclude further disbursements to shareholders, notwithstanding the existence of a surplus balance at the end of the year.

In the typical enterprise, lying between these extremes, surplus accumulation is generally accompanied by expansion of both current and fixed assets, and here there is only a very limited possibility of paying dividends in the face of continuing losses, regardless of the size of the surplus account.

Current operations may yield funds available for distribution in excess of the amount of net income. Assume, for example, that in 1937 the

cost of fixed assets of the M Co. charged to revenues totals \$300,000, and that no money is expended for replacements or improvements, with the result that at the end of the year the status of the enterprise is as follows:

Current Assets . . . . .	\$1,200,000	Current Liabilities . . . . .	\$ 500,000
Fixed Assets . . . . .	4,700,000	Capital Stock . . . . .	4,400,000
		Surplus . . . . .	1,000,000
	<u>\$5,900,000</u>		<u>\$5,900,000</u>

Under these circumstances a dividend of \$200,000—the amount of the conversion of fixed assets less the loss for the year—can be paid without impairing the net working capital of \$500,000. This illustrates the way in which many concerns maintain a flow of dividends during a period of depression in excess of the profits earned—or in spite of losses suffered—in such period. By recovering costs including depreciation and limiting expenditures on plant account funds are made available which permit the appropriation of accumulated surplus as dividends. (See discussion of funds in Chapter XXX.)

There is also the possibility, important only in rare cases, that funds may be secured through the outright sale of capital resources which will liberate “frozen” surplus and thus facilitate the payment of dividends.

The general conclusion to be drawn is that dividends can seldom be long continued in the absence of current profits, no matter how much surplus has been accumulated in the past. As a rule surplus is supported by a cross section of all the assets, rather than by a reserve of liquid resources. And even where the strength of the working-capital position is exceptional the desire to maintain dividends is confronted with the necessity of conserving funds if survival is to be assured. In a period of marked business recession, moreover, the value of the marketable securities owned is subject to serious shrinkage. Probably the most important means of making surplus available to stockholders is conversion of fixed assets into current coupled with the policy of sharply restricting additions and replacements.

**Accumulated Losses and Dividends.** Must all losses suffered in the past be recouped before dividends may be appropriated? In general this much-debated question should be answered in the affirmative. The first requirement of corporate policy is the maintenance of the integrity of capital and if capital has been impaired by losses subsequent profits are available for dividends only after capital has been restored. Where the accumulated deficit is large the rigid application of this rule may seem to work a hardship on stockholders in need of funds but there is no alternative unless the prevailing conception of corporate capital is to be

radically modified. Were dividends to be based on current profits, without consideration of the status of capital, it would be possible to return a large part—or even all—of the capital funds as dividends in a short time. The operations of the R Investment Co., for example, organized with a capital of \$10,000,000, result as follows:

First-year profit . . . . .	\$2,500,000
Second-year loss . . . . .	2,500,000
Third-year profit . . . . .	2,500,000
Fourth-year loss . . . . .	2,500,000

In this extreme situation, where there is evidently no loss or gain for the four years taken as a whole, the payment of \$5,000,000 in dividends, based on the profits of the first and third years, amounts to a distribution of half the entire capital of the enterprise. The illustration suggests, it should be added, the need for surplus accumulation as a buffer for possible losses as well as the undesirability of paying dividends in the face of an unabsorbed deficit.

On the other hand a corporation, like an individual, may deserve the opportunity to make a "fresh start" in some circumstances. The M Co., for example, begins business with a capital of \$50,000,000, of which \$20,000,000 is invested in a foreign country. As a result of a political upheaval the foreign investment is wiped out, resulting in a deficit of \$20,000,000. It appears to the management, moreover, that it would be unwise to attempt further operations abroad. Domestic business is being conducted on a satisfactory basis, but no unusual opportunities for expansion are in sight. In this situation the application of the rule that no dividends can be paid until past losses are fully recovered will require an accumulation of \$20,000,000 of earnings on the remaining capital. Further, if conditions remain unchanged it will be necessary for the Company to build up a huge fund, not needed in the business, before it is possible to consider the payment of dividends. An exception is clearly required here. Assuming formal action by the stockholders, with full disclosure of the circumstances to all parties at interest, there can be no valid objection to a recapitalization on the basis of \$30,000,000. The amount of \$20,000,000 is gone, and under the new conditions restoration of capital is inadvisable. Nothing is to be gained, accordingly, by a rigid adherence to the original setup. Even if there are bonds outstanding this conclusion is not unreasonable, although protection of the bondholders may require the retirement of bonds out of subsequent earnings before dividends are paid.

Recognizing the propriety of formal recapitalization to absorb losses in very special circumstances need not be considered as sponsoring the common practice of making transfers from capital account to surplus



whenever a substantial loss is suffered. Such practice, in fact, deserves strong condemnation, especially where it results in obscuring the actual conditions. Reduction in capital should require consent of stockholders and creditors, specific approval of the incorporating instrumentality, and should be restricted to cases in which the change has real justification. Full disclosure, moreover, should be made, and the explanation should be included in at least two or three successive reports.

**Discount and Dividends.** The M Co., for example, issues stock with a par value of \$100,000 for a consideration of \$80,000. In this situation should surplus be accumulated in excess of the amount necessary to absorb the discount of \$20,000 before dividends are declared? The answer depends in some measure upon the collateral circumstances. If the Company can use \$20,000 of additional money to good advantage it may be expedient to plow back earnings in this amount in lieu of levying an assessment. Or if the interests of the creditors are not deemed to be adequately protected by a possible assessment, and calling an assessment seems inadvisable, expansion of the proprietary equity through retention of earnings to at least the full capital value of the outstanding stock may be justified. If, on the other hand, the amount paid in proves to be adequate to the needs of the company, and no question of financial strength is involved, insistence on discount accumulation prior to the payment of dividends is clearly objectionable from the standpoint of the stockholders, and may not be reasonable from any point of view. No one would hold that stock should be issued merely because it happens to be a part of the authorized capital, and similarly there is no good ground for holding that in every case a paid-in capital value of less than par, acknowledged to be appropriate at the outset, must be built up to par value before any disbursement of profits is made to stockholders.

In a situation in which there is no reason for increasing the amount of capital actually invested by the amount of original discount it may be advisable, from the legal point of view, to eliminate the discount by formal revision of the par value of outstanding stock before distribution of accumulated profits as dividends is authorized.

Should original overvaluation, the "water" attaching to stock which is nominally fully paid, be made good through profit accumulation before the initial dividend is declared? This question is best answered by another query. If overvaluation can be countenanced at the outset why must earnings be dedicated to the accumulation of resources presumably not required in business operation? The way to deal with overvaluation is to employ sound values in the accounts to begin with, or to correct the misstatement as soon as it becomes apparent; withholding earnings from stockholders for a more or less considerable period is no solution.

**Dividend Action—Legal Aspects.** Dividends are declared by formal resolution of the board of directors, acting under authority conferred by the corporate bylaws. The practice of notifying all stockholders of the dividend declaration is often followed, even where not definitely required. In the larger companies notification is usually accomplished through publication of the information in one or more newspapers. The announcement may read somewhat as follows:

The Board of Directors of the M Co., at their meeting on June 15, 1941, declared the regular quarterly dividend on outstanding common stock of \$2.00 per share, and an extra dividend of \$1.00 per share, both payable on July 10, 1941, to stockholders of record at the close of business June 30, 1941.

Dividend declarations are often numbered in sequence, as an added means of identification.

The action of the board in appropriating income or surplus as a dividend is deemed to create a liability in favor of the stockholders of the amount declared, and dividends payable are accordingly reported in the liability section of the balance sheet. Dividends declared nevertheless represent an equity of the stockholder and in calculating book value per share should be taken into account at any time between date of appropriation and dividend record date. On the latter date the stock becomes "ex dividend" and subsequent transfers do not alter the distribution. Because of the special character of the liability to shareholders segregation of the amount, even in the condensed balance sheet, is always desirable.

The law permits the board to exercise a wide discretion with respect to the circumstances under which dividends are declared and paid. In general, however, dividends must not be paid when a company is insolvent or when the dividend action would precipitate insolvency, even in the presence of a credit balance in the surplus account. The right of the directors to withhold dividends, moreover, may be challenged under exceptional circumstances. The freedom of action of the board may also be restricted in a variety of ways by contracts between the corporation and stockholders or creditors.

Occasionally a series of cash dividends is declared by the board through one resolution. Cases have arisen, in fact, where quarterly dividends were declared for several years in advance. This is questionable financial administration, particularly in view of the fact that losses might occur during the period covered by the declarations in an amount exceeding the total surplus not appropriated by the dividend action. Presumably the entire amount appropriated is given a liability status at the time the resolution is passed, but the other creditors might well complain if

disbursements were being made to stockholder-creditors in the face of a deficit.

The board of directors has no power to rescind a cash dividend, legally and properly declared, even where payment has not yet been made. An unannounced dividend resolution, however, may presumably be reconsidered. It is also likely that no objection would be offered if a dividend appropriation were canceled—or a payment recalled—with the explicit consent of all shareholders. The declaration of a stock dividend, where no debtor and creditor relation is created, can be revoked by the board at any time before the stock is issued.

Where a corporation fails to pay a dividend legally declared the stockholder is in the position of any general creditor and can bring suit to compel payment.

**Accounting Procedure.** In effecting payment of a dividend a list of stockholders as of the record date must be prepared from the stock ledger. This should show names and addresses, shares held, and the amount of the dividend accruing to each stockholder. The checks must then be prepared from this list and mailed, on or before the payment date. A special bank account is sometimes established for dividend purposes. Since dividends are declared pro rata to all stockholders of a given class no subsidiary ledger or record other than the stockholders' list is required. In large companies with many shareholders the work of preparing the list and making payment is a very considerable task. The transfer agent—where one is employed—is responsible for the compilation of stock holdings but payment is made by the company. The transfer books may be closed for a period to facilitate the handling of a dividend declaration.

Assuming that the shares of M Co. stock outstanding—see model notice in preceding section—total 500,000, and that the regular dividend is No. 21, the following entries indicate the nature of the general-ledger procedure:

June 15			
Dividend Charges . . . . .	\$1,500,000		
Dividend Payable—No. 21 . . . . .		\$1,000,000	
Dividend Payable—Extra . . . . .		500,000	
To record declaration			
July 10			
Dividend Payable—No. 21 . . . . .	1,000,000		
Dividend Payable—Extra . . . . .	500,000		
Bank Account . . . . .		1,500,000	
To record payment			

At the end of the period the amount of dividend charges should be closed to the current net income account except where the appropriation is clearly applicable to accumulated surplus. A quarterly dividend, for

example, is not assignable to monthly income, and a large extra or special dividend may be drawn in whole or in part from past earnings. If desired the account "Dividend Charges" may be dispensed with and the amount of the dividend charged directly to income or surplus account.

The possibility of dividends being declared for some time in advance of payment was mentioned above. Where such action is taken the entire appropriation should be set up as declared dividends but a distinction may well be drawn between the first dividend payable and the later dividends. Assume, for example, that the directors of the K Co. by a single resolution declare a series of eight quarterly dividends of \$100,000 each, all to be appropriated from existing surplus. Under these conditions the following entries might be recorded on the occasion of declaration:

Surplus . . . . .	\$800,000	
Dividends Payable—Current . . . . .		\$100,000
Dividends Payable—Deferred . . . . .		700,000

Then as the payment date of each quarterly dividend approached a transfer from the deferred to the current dividend account would be in order.

Dividends declared in scrip or other promises to pay are handled like cash dividends as far as declaration procedure is concerned. On the "payment" date the notes or bonds are distributed, and on the due date the outstanding instruments are redeemed in cash as presented by the holders—who may or may not be the parties to whom the dividend evidences were issued. Assume, for example, that a dividend of \$1,000,000 is appropriated from surplus payable in sixty-day scrip without interest. The general entries are:

(1)		
Surplus . . . . .	\$1,000,000	
Scrip Dividend Declared . . . . .		\$1,000,000
To record declaration		
(2)		
Scrip Dividend Declared . . . . .	1,000,000	
Dividend Scrip Outstanding . . . . .		1,000,000
To record issue of scrip		
(3)		
Dividend Scrip Outstanding . . . . .	1,000,000	
Bank Account . . . . .		1,000,000
To record redemption of scrip		

Unclaimed dividends should be carried as a liability until other disposition is legally warranted and authorized by the directors.

**Valuation of Noncash Dividends.** A dividend paid in property other than cash is taxable income to the recipient in the amount of the fair market value of the medium in which payment is made. On the cor-

poration's books, however, the amount of the dividend may be stated in terms of book value, as there is little point to a recognition of estimated profit or loss occasioned by distribution of assets to shareholders. The R Co., for example, distributes as a dividend government bonds which cost \$100,000 and have a market value of \$105,000. The bonds have not been written up on the Company's books. The summarized entries are:

(1)			
Income (or Surplus)	.	.	\$100,000
Dividends Payable	.	.	\$100,000
(2)			
Dividends Payable	.	.	100,000
Investments	.	.	100,000

If the market value of \$105,000 were recognized by the Company the net result would be the same, as the charge to income or surplus would be increased in the amount of the appreciation booked.

A more difficult question of valuation may be raised by the issue of the corporation's own notes or bonds as a dividend. The K Co., for example, "pays" a dividend in the form of ten-year, 6% debenture bonds with a par value of \$100,000 and a market value—evidenced by bona-fide transactions in outstanding bonds of the same class—of \$90,000. How should this dividend be accounted for? If the Company issued the bonds for cash and then declared and paid a cash dividend based on the proceeds the effect on the Company's accounts, evidently, would be the same as if a dividend in bonds were issued valued at \$90,000. And this leads to the conclusion that the correct treatment requires the recognition of cash value, as follows:

(1)			
Income (or Surplus)	.	.	\$90,000
Bond Dividend Payable	.	.	\$90,000
(2)			
Bond Dividend Payable	.	.	90,000
Debenture Bonds Outstanding—Discount	.	.	10,000
Debenture Bonds Outstanding—Par.	.	.	100,000

Under this interpretation the immediate absorption of profits is only \$90,000, and the discount is accumulated through the life of the bonds by charges to income. If the dividend were recorded in terms of par, on the other hand, the proprietary equity would be reduced at once by \$100,000 and larger net profits—to the amount of \$10,000—would be reported during the ensuing ten years.

**Dividends on Preferred Stock.** Dividend procedures do not vary materially with the class of stock involved. Preferred dividends are usually paid quarterly (occasionally semiannually) and are in general declared with greater regularity than common dividends. The passing

of a dividend on noncumulative preferred stock does not give rise to an arrearage unless the dividend was earned, either in the current period or earlier, and even where surplus exists in adequate amount failure to pay the dividend does not necessarily create an equity for the preferred stockholders if the disbursement is not warranted by the condition of the company in the well-considered judgment of the board of directors. Passed dividends on cumulative preferred stock represent arrears but cannot be construed as a definite liability. Moreover, such dividends will never be paid unless earned, although the amount of the arrearage may eventually become so great as to bring about reorganization or even liquidation. The authority of the board to pass dividends on cumulative preferred in the presence of actual surplus can presumably be challenged if dividends are unreasonably withheld, as the amount in arrears commonly bears no interest and indefinite withholding would be decidedly unfair to the preferred stockholders. Accountants usually recommend that the full amount of the arrearage be reported by means of footnote or supplementary comment, and there is something to be said for an earmarking of a portion or all of surplus (where there is a surplus) as a "reserve for preferred dividends."

Should dividends on preferred stock be continued when there is no surplus although cash is available in adequate amount? This condition, although not typical, may arise in the period of organization and development or during a term of years in which profits are small or nil and fixed assets are being contracted. As emphasized earlier, dividends in general cannot legally be paid in the absence of surplus, and it is hardly to the advantage of the common stockholder to permit his equity to be absorbed in making payments to the preferred stockholders which are not required. The only excuse for declaring preferred dividends in such circumstances is the desire to maintain the standing of the corporation, and in rare cases the use of capital funds to make disbursements to preferred shareholders may be justified on this account—assuming circumstances which make it feasible to ignore the general legal rule. Formal conversion of a portion of capital to "surplus" is sometimes undertaken for the purpose of making it legally possible to declare dividends on senior stock issues.

**Stock Dividend Procedure.** The declaration of a stock dividend is possible only where authorized shares are available. Either common or preferred shares may be employed, although the use of preferred stock for dividend purposes is unusual. Under the typical procedure stockholders are permitted to retain their old certificates and additional certificates are issued pro rata to give effect to the dividend. The use of fractional warrants is generally unavoidable, and it may be advisable for

the issuing company to provide means to facilitate their utilization. Fractional shares have no voting power or dividend rights and usually lapse after a specified date. The amount of warrants outstanding on the expiration date should be returned to the surplus account.

For example, the R Co., with authorized capital of 1,000,000 shares and par value of \$10,000,000, of which 250,000 shares with a par value of \$2,500,000 are unissued, declares a stock dividend of \$1,000,000 represented by 100,000 shares. The individual holdings of shares are such that the distribution of the dividend requires the issue of certificates for 97,000 full shares and fractional warrants aggregating 3,000 shares. The resolution of the directors provides that fractional certificates are redeemable in cash by the corporation for a period of thirty days at the rate of \$10 per full share, and may be purchased by stockholders on the same basis. The resolution also provides that part-share rights expire unless presented for redemption or exchange within thirty days from date of issue. Under this arrangement the Company redeems warrants amounting to 1,600 shares and sells warrants for the account of stockholders totaling 1,375 shares. Certificates for 2,750 full shares are issued in exchange for fractional rights, and those held by the Company (equal to 225 shares) plus those remaining in the hands of stockholders (equal to 25 shares) are canceled. The necessary entries are:

(1)		
Surplus . . . . .	\$1,000,000	
Stock Dividend Declared . . . . .		\$1,000,000
To record declaration of dividend		
(2)		
Stock Dividend Declared . . . . .	1,000,000	
Capital Stock . . . . .		970,000
Stock Warrants Issued . . . . .		30,000
To summarize distribution of certificates and fractional warrants per holdings shown by stock ledger of record date		
(3)		
Stock Warrants Redeemed . . . . .	16,000	
Bank Account . . . . .		16,000
To record purchase of warrants presented for redemption		
(4)		
Cash . . . . .	13,750	
Stock Warrants Redeemed . . . . .		13,750
To record sale of warrants to stockholders		
(5)		
Stock Warrants Issued . . . . .	27,500	
Capital Stock . . . . .		27,500
To record issue of stock certificates in exchange for matched warrants presented		
(6)		
Stock Warrants Issued . . . . .	2,250	
Stock Warrants Redeemed . . . . .		2,250
To give effect to cancellation of redeemed warrants		

(7)		
Stock Warrants Issued. . . . .	250	
Surplus . . . . .		250
To return redemption value of lapsed warrants to surplus		

The account with warrants redeemed is a contra to that showing warrants issued. The net result of the entire transaction is the issue of dividend stock amounting to 99,750 shares, the disbursement of \$2,250 in cash, and the return to surplus of \$250, the amount of the original appropriation attaching to warrants which stockholders have permitted to lapse.

**Dividends in No-Par Stock.** The principal question arising in connection with the issue of dividends in shares without par value concerns the amount of surplus to be capitalized per share. What is the proper basis: declared or stated value per share, total average paid-in value, market value, total book value, or some other figure? If the capital account is to be defined in terms of stated value per share it seems reasonable to use this amount as a measure of capitalized surplus when dividend stock is issued. For example, if the S Co. has outstanding 800,000 shares of no-par stock with a stated value of \$25 per share and 100,000 shares of stock of the same class is issued as a dividend, the indicated charge to surplus is \$2,500,000. This treatment may be objected to, however, on the ground that stated value is often a nominal figure much less than total paid-in value and that the latter is therefore the true measure of capital. If the average paid-in value of S Co. stock is \$50 per share, and this figure is accepted as the capital unit, the issue of a stock dividend of 100,000 shares requires a charge to surplus of \$5,000,000. The entries on this basis are as follows:

(1)		
Surplus . . . . .	\$5,000,000	
Stock Dividend Declared . . . . .		\$5,000,000
(2)		
Stock Dividend Declared . . . . .	5,000,000	
Capital Stock—Stated Value . . . . .		2,500,000
Capital Stock—Paid-In Surplus . . . . .		2,500,000

This, on the whole, is the preferable treatment, and has received the support of the New York Stock Exchange.

Neither market price per share nor total book value per share represents a proper basis for the charge to surplus, as both include the value of the very surplus under consideration. Since a stock dividend, in other words, consists of a formal transfer of surplus to capital account, it is necessary to distinguish sharply between the two main sections of the stock equity in measuring and recording the amount capitalized. The



adoption of an arbitrary value, set by the board of directors, is likewise objectionable, and the use of the label "dividend" where stock is issued with no accompanying capitalization of surplus is clearly improper.

Dividends in no-par stock have frequently been based upon capital surplus in whole or in part. This is another practice which does not deserve support. There is no objection to the amalgamation of paid-in surplus and stated capital—quite the contrary. But the use of the phrase "stock dividend"—if it is to have any proper application—should be restricted to situations in which the issue of dividend shares has the capitalization of earned surplus as its essential purpose.

The significance of stock dividends in relation to surplus is given further attention in the next chapter.

### QUESTIONS

1. List the principal types of dividends. What is the test to be applied in distinguishing between nominal and true dividends?

2. Discuss the source of dividend appropriations from the legal and administrative standpoints. Is "surplus from appreciation" a proper basis for dividend declarations?

3. A corporation with a surplus of \$5,000,000 of which the amount of \$1,000,000 was accumulated prior to March 1, 1913, declared a cash dividend of \$1,000,000 "payable out of surplus earned before March 1, 1913." Comment.

4. State and explain the factors which should be weighed by the board of directors meeting to consider dividend action. Should the class of stock influence the decision? The origin of surplus?

5. Indicate the effect of surplus taxes upon dividend policy. Are such taxes desirable from this standpoint?

6. "The operations of your company resulted in a loss for the year of \$20,000,000. Nevertheless dividends were declared and disbursed amounting to \$15,000,000, such action being made possible by the policy of accumulating surplus in earlier years." Discuss fully.

7. "Disbursing dividends based on current profits which are not sufficient to wipe out an accumulated deficit amounts to the payment of dividends out of capital funds." Discuss.

8. Under what circumstances can the practice of recapitalizing to absorb past losses be justified?

9. Must the declaration of dividends await an accumulation of surplus in excess of discount on stock or initial overvaluation?

10. What three dates are usually involved in a dividend declaration? When does a stock become "ex dividend"? Outline, with illustrative entries, the dividend procedure in a large company with many stockholders.

11. Assuming an ample surplus account is it wise for the directors to declare a series of dividends payable over the following year or more?

12. Can a dividend declaration be rescinded by the board of directors?

13. How should quarterly dividend appropriations be reported in a monthly income sheet? In an annual statement?

14. How should dividends paid in merchandise be valued in the corporation's ac-

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counts? In the recipient stockholder's accounts? Answer the same questions for dividends paid in scrip, notes, and bonds.

15. When are dividends in arrears on noncumulative preferred stock? On cumulative preferred? How should dividend arrearages be reported? Discuss the payment of preferred dividends out of capital.

16. Discuss stock dividend procedure, including specific attention to the treatment of warrants for fractional shares.

17. What amount per share should be charged to surplus when a dividend is issued in no-par stock? Explain fully.

## XXVI

### SURPLUS AND RESERVES

**Types of Surplus.** Surplus, it has already been pointed out, is of two main types, (1) earned surplus and (2) capital surplus. Earned surplus consists of accumulated profits, including the effect of special gains and losses, and capital surplus reflects amounts paid in in excess of capital as legally defined. Increases in total surplus account resulting from recapitalization, conversion and retirement of stocks, donations by stockholders, forfeiture of subscription deposits and rights, and contributions by outsiders may also be comprehended under a broad conception of capital surplus. A third form of "surplus" is that arising from revaluation of assets.

The main classes of surplus should be clearly reflected in the ledger setup, and where there is any question of interpretation each important subdivision should be given a separate account. Thus a substantial expansion of surplus resulting from the retirement of a particular block or issue of stock may well be recorded under a special title such as "surplus from stock exchanges and retirements." Similarly it may be desirable to segregate a large book gain derived from the disposition of capital assets. All changes in surplus, including adjustment of capital surplus and unrealized appreciation, should be clearly reported, and this is facilitated by an adequate treatment in the ledger.

"Deficit" is the term often applied to accumulated losses, negative surplus. A deficit usually results in large measure from ordinary operating losses, but in some cases capital losses and other special items are important contributing factors. All types of loss should of course be clearly reported in the income statement but segregation of accumulated deficit by main sources is less important than a corresponding division of surplus. A sharp distinction should be drawn, however, between a deficit and stock discount or the amount of an initial overvaluation.

Earned surplus may be appropriated or unappropriated. The amount of surplus affected by dividend declarations passes out of the surplus category, but mere earmarking or reserving of surplus does not alter its essential character as an element of the proprietary equity. In the banking field paid-in surplus and earned surplus which has been infor-

mally capitalized are often combined in a single surplus account, the total of which may exceed the capital stock, and the balance of surplus is reported under the title "undivided profits."

In balance-sheet presentation stock premium or paid-in surplus should be associated with the capital stock account.

**Surplus Accumulation.** In the past the accumulation of surplus on a large scale has been a feature of the financial administration of many corporations. An important factor in bringing this about has been the rapid growth of American business undertakings and the ease of financing such growth through the utilization of earnings. Surplus accumulation also reflects conservative dividend policy and the general desire to strengthen financial position. The significance of surplus as a reserve for dividend appropriations in lean years was discussed in the preceding chapter. Occasionally surplus is retained in connection with some specific undertaking such as the retirement of a bond issue or the development of a new line of activity, or as a buffer designed to absorb the shock of a particular loss which is feared if not expected.

The "plowing back" of profits is not a virtue in itself, and no doubt there have been cases in which larger dividends and less expansion would have been more in accord with the best interests of the stockholders than the policy of accumulation followed. Possibly the individual stockholder should be given a greater opportunity, year by year, to determine for himself the disposition to be made of his share in profits. This might be accomplished by paying dividends each period substantially equal to the profits of the period and offering all stockholders the right to subscribe for additional stock to provide the money for further development. On the other hand the retention of profits is a very convenient and inexpensive method of increasing working capital and providing funds for additions to plant in a more or less continuous stream, and assuming that reasonably good judgment is being exercised by the management in making commitments this method of financing may be fully in accord with the best interests of the rank and file of the shareholders. The development of methods of taxation which arbitrarily force the payment of dividends each period for the full amount of profits is decidedly objectionable. It may be that in many cases the stockholders should exert a more immediate and active influence on financial administration but it is no solution of this problem to pass legislation which takes the effective control away from both management and investors. Moreover, as long as the general rule of law is that dividends may be legally appropriated only from surplus the accumulation of at least a modest surplus account is desirable as a means of stabilizing dividend disbursements in some measure; and as long as impairment of capital is considered to be a

serious matter some accumulation of surplus is desirable to absorb the deficits of bad years.

**Unusual Losses and Gains.** The relation of special charges and credits to income and earned surplus deserves emphasis. In the first place are losses resulting from major casualties, special plant write-downs, etc. chargeable directly to paid-in capital in the presence of earned surplus? In general such treatment is very questionable, except where the losses occur during the organization period. All losses of whatever character which can appropriately be booked should be reported clearly in the periodic statement of income and surplus, and it must be assumed that the capital of an enterprise is not subject to impairment unless and until surplus is exhausted. This conclusion flows from the legal character of the capital fund and the traditional business conception of the relation of capital and surplus. Even where the asset values which have disappeared represent particular resources secured with original invested funds the capital remains intact as long as the proprietary equity in total assets is equal to the capital amount. Occasionally situations arise in which it may be proper to treat an estimated scaling down of values for a time as a contra to the total net worth as otherwise disclosed, but when such an estimated loss has actually been realized and is subject to record in final form it is hardly reasonable to reduce the capital account until the surplus has been entirely absorbed.

Where the consideration paid for the stock exceeds the formal legal capital it is common practice—and not objectionable in the eyes of the law—to absorb particular losses and adjustments by charges to capital surplus. Such practice, however, is not to be recommended, and where it results in failure to disclose a loss in the periodic reports it should be roundly condemned.

Similarly all special profits and gains should be passed through earned surplus instead of being credited directly to capital account.

The relation of unusual losses and gains to current income as opposed to earned surplus received some attention in Chapters XX and XXI. The general position taken here is that all specific items of loss and gain should be associated with current incomes unless circumstances make such treatment clearly unreasonable and hence justify a direct charge or credit to surplus. Further, the practice of clearly disclosing in the periodic income statement all losses and gains directly assigned to surplus is strongly recommended.

**Surplus Derived from Voluntary Assessment.** A special means of dealing with a deficit sometimes employed is the contribution by stockholders of a voluntary assessment. The M Co., for example, with outstanding common stock of \$1,000,000 (100,000 shares) and 6% cumula-

tive preferred stock of 5,000 shares, par \$500,000, finds itself faced with an accumulated deficit of \$200,000 and dividends in arrears (not on the books) of \$90,000. At this juncture the stockholders agree to contribute \$4 per share, in cash, for the purpose of absorbing the deficit, meeting back dividends on preferred stock, and establishing a surplus. Assuming the rehabilitation is carried out as planned the following entries are in order:

(1)		
Cash . . . . .	\$400,000	
Contributions of Shareholders . . . . .		\$400,000
To record collection of voluntary assessment of \$4 per share		

(2)		
Contributions of Shareholders . . . . .	90,000	
Preferred Dividends Payable . . . . .		90,000
To record declaration of back dividends on preferred stock totaling \$18 per share		

(3)		
Contributions of Shareholders . . . . .	200,000	
Deficit . . . . .		200,000

(4)		
Contributions of Shareholders . . . . .	110,000	
Paid-In Surplus . . . . .		110,000
To close balance of temporary account to capital surplus		

Cash donations by particular shareholders, as opposed to pro-rata contributions, would be similarly accounted for.

A surplus created in this manner should be sharply distinguished from earned surplus. Further, the manner in which the deficit has been extinguished should be clearly reported and any earned surplus accruing later should be dated from the point of the "fresh start."

**Surplus Derived from Capital Account.** As has been explained (Chapter XXIII) a portion of the proceeds from the issue of capital stock is often credited directly to paid-in or capital surplus. It has also been pointed out (Chapter XXIV) that under special circumstances a portion of the capital account is sometimes used to absorb losses. Here some attention should be given to the practice of creating a positive surplus through reduction of stated capital.

One method of transferring capital to surplus is by donation to the corporation of a portion of the shares outstanding. For example, assume that the condition of the M Co. is as described in the preceding section and that instead of contributing cash each common stockholder "donates" to the Company 40% of the number of shares he owns. Ignoring the fact that to carry out this transaction some arrangement for dealing

with fractional shares would presumably be required the appropriate entries to record the acquisition of shares are:

Capital Stock . . . . .	\$400,000	
Deficit . . . . .		\$200,000
Capital Surplus . . . . .		200,000

This transaction, although resulting in a form of surplus amounting to \$200,000, would neither add a penny to working capital nor affect the dividend arrearage. It simmers down, in fact, to nothing more than a charging of the deficit to capital coupled with a transfer of an additional amount of stated capital to surplus account. The donation is more apparent than real, as the total equity of the common stock is not affected and there is no cost to the shareholders. On the other hand it would presumably make possible the legal appropriation of preferred dividends and this might be an advantage if funds from which payment could be made were already available.

The more common method of converting capital into surplus is to reduce the par or stated value per share, but the effect is substantially the same as where there is a pro-rata donation of shares. Assume, for example, that the M Co. takes formal action to reduce the stated value of its common stock from \$1,000,000 to \$600,000, for the purpose of eliminating a deficit of \$200,000 and creating a surplus. With these conditions the general entries required are precisely the same as those given above.

The creation of surplus by transfer from capital account, whether accomplished by reduction of number of shares or by writing down the capital value per share, is a very questionable financial adjustment. In special cases, as explained earlier, elimination of deficit through a recapitalization may be justified, but it is difficult to find a sound basis for a "window dressing" which transforms a deficit into a surplus.

Return to surplus account of "capital" derived from accumulated profits at an earlier date (see discussion of surplus capitalization, below) can sometimes be defended as a correction of a previous adjustment which was not wholly justified. There is no defense, however, for a variable policy which amounts to a juggling of capital and surplus accounts.

**Capitalization of Earned Surplus.** The transfer of accumulated profits to the capital account may be accomplished by increasing the par or stated value per share, by issuing additional stock, and—in special cases—by absorbing stock discount or original overvaluation through charges to earnings. The device commonly employed, however, is the issue of dividend stock.

The principal reason for the capitalization of surplus is the desire of the management to reflect in the equity accounts the fact that profits have been used—or are to be used—in financing expansion or in retiring

obligations incurred in the development of the business, and to ensure their permanent retention in the business. Action in this direction may also be taken for the purpose of increasing marketability of the shares or to permit payment of a larger total of cash dividends without increasing disbursements per share or the rate of dividend to formal capital—not very important ends, and ends which can be affected by the split-up without disturbing surplus. Another and somewhat questionable reason for surplus capitalization is the desire to obscure the existence of large undivided profits in connection with rate regulation, labor controversies, etc. in an effort to check or forestall the development of opinions as to earning power and its disposition which are likely to be prejudicial to the corporation's interests.

The fact that the Supreme Court has held that dividend stock does not represent income to the shareholder may have given some encouragement to the practice of retaining earnings coupled with the issue of additional shares as a means of capitalization—particularly in the case of companies in which the shares are closely held.

**Effect of Stock Dividend on Corporation.** The nature and effect of the stock dividend have been widely misunderstood, in part no doubt as a result of the questionable use of the term “dividend” in describing the phenomenon. As has just been stated the issuing of dividend stock is a process of capitalizing surplus. That this is the proper interpretation may be made clear by reference to a simple example. The M Co., with an authorized capital of 100,000 shares, par \$100 each, of which 50,000 shares are outstanding, has the following status:

Assets . . . . .	\$7,500,000	Capital Stock . . . . .	\$5,000,000
		Surplus . . . . .	2,500,000
	<u>\$7,500,000</u>		<u>\$7,500,000</u>

At this point it is decided to issue 20,000 shares of stock pro rata in the form of a dividend. Assuming no complications, the Company's position when the “dividend” has been “paid” is as follows:

Assets . . . . .	\$7,500,000	Capital Stock . . . . .	\$7,000,000
		Surplus . . . . .	500,000
	<u>\$7,500,000</u>		<u>\$7,500,000</u>

Now what has been the effect of the transaction? Evidently the assets remain undisturbed and there is no change in the total equity of the stockholders. However, the composition of the equity has been modified. Surplus has been transferred to capital account in an amount equal to the par value of the additional shares issued. Here is the essential feature



of the transaction—formal capitalization of surplus in the specified amount.

Aside from the accompanying capitalization of surplus the effect of the stock dividend is very much like that of the split-up. In the example the outstanding stock is increased from 50,000 shares to 70,000 shares and the book value per share is reduced from \$150 to \$107.14. If instead of issuing dividend stock the M Co. had recapitalized and issued 70,000 shares of new stock with a stated value of \$71.43 each in exchange for the 50,000 shares outstanding the result again would have been a decrease in book value per share from \$150 to \$107.14.

**Significance of Stock Dividend to Shareholder.** The stock dividend, clearly, is not a true dividend. There is no assignment or distribution of corporate assets to the stockholders. Far from being a distribution the issue of dividend stock serves notice on the stockholders that a section of surplus has been permanently removed from the dividend reservoir and added to the capital investment. In view of this the use of the phrase "melon-cutting" to describe a stock dividend is a bit unreasonable, to put it mildly. An advancing market price for the stock based on nothing more substantial than the prospect of a stock dividend, or the actual declaration of such a dividend, is likewise a somewhat surprising phenomenon, although it may be partially explained where the increase in the number of shares outstanding is the forerunner of a policy of making larger cash disbursements. In general the issue of a stock dividend can be expected to bring about a proportionate reduction in the prevailing market price per share. If the quoted price of the M Co.'s stock, for example, is \$154 per share when a dividend of two shares for every five outstanding is declared, the market value may be expected to fall to \$110 per share when the new stock is actually issued—barring the influence of other developments.

The underlying question involved is the significance to the shareholder of corporate earnings retained by the corporation, and this is a phase of the broader problem of the essential character of the relation between the corporation and the individual investor. According to the dominant view the corporation is a distinct legal entity, with assets separate and apart from the personal resources of the stockholder. Adoption of this view leads to the doctrine that the earnings of the corporation are not the income of the shareholder and can be placed in the latter's hands only through the process of declaring and disbursing dividends. If this is a sound position the issue of additional stock by the corporation does not result in the transfer of income funds to the shareholder, and the condition is not changed by attaching the label "dividend" to the shares issued. According to the principal alternative view the corporation is

merely an agent or steward which has undertaken to administer certain funds furnished by a group of individuals. From this standpoint the corporate profits represent the undivided income of the contributing members arising from the joint property. If this interpretation is controlling, in other words, profits accrued on the corporate books are subject to recognition on the stockholders' books. This means that dividend action represents the comparatively unimportant process of transferring funds from the corporate (agent's) bank account to the hands of the stockholders (principals). So far as the issue of "dividend" stock is concerned, however, acceptance of the alternative position does not alter the significance of the transaction; again the appropriate conclusion is that nothing more is involved than the division of the beneficial interest into a greater number of units.

There are some signs on the horizon of a drift from the independent entity conception to the partnership interpretation of the corporate institution in its relation to shareholder members. One such sign, for example, is found in the continued advocacy of an amendment to the income-tax structure which would result in taxing stockholders on their distributive shares in corporate profits. On the other hand it is not likely that the entity view will be seriously invalidated in the near future. Whatever may be the development it should be understood that adoption of the stewardship or partnership view affords no support whatever for the persistent attempt to construe the stock dividend as decisive evidence of stockholder income.

In the case of companies which have a ready market for their shares it is of course possible for the recipient shareholder to dispose of any part or all of his dividend stock, and this fact has often been urged as support for the theory that dividend stock represents income to the shareholder. Indeed some persons interested in the subject have been so impressed by the possibility of selling the additional shares received that they have been led to contend that stock dividends are a completely adequate substitute for cash dividends—that it is a matter of indifference to the stockholder which policy the corporate management elects to follow. There is little justification for such an attitude. It is true that for the few hundred corporations for whose shares there is an active market any dividend stock issued may be readily sold. Such action, however, reduces the stockholder's proportionate interest in the enterprise and hence is not equivalent to the collection of a cash dividend. Moreover, the prevailing price of the shares would usually not coincide with the amount of surplus capitalized; in other words, in order to realize in cash an amount equal to a stock dividend as appropriated by the company it would generally be necessary to dispose of either more or less than the

number of shares received as a dividend. More important is the point that if the stockholder wishes to "declare his own dividend" by disposing of a portion of his holding he can do this without any assistance from the corporation (assuming that he holds a number of shares). A, for example, who holds 100 shares of the stock of M Co. with a market value of \$154 per share, sells twenty-six shares just before the declaration of a 40% stock dividend, thus realizing \$4,004 in cash, approximately the book value of his equity in the surplus to be capitalized. Shortly thereafter he receives a dividend of 29.6 shares, which gives him a total holding of old and new stock of 103.6 shares with a market value, at \$110 per share, of \$11,396 (assuming that fractional warrants are salable on the same basis as full shares). He then buys a fractional warrant for four-tenths of a share at a cost of \$44, which increases his holding to 104 shares worth \$11,440. B, another stockholder with an original holding of 100 shares, sells no stock until after the dividend shares are issued and accordingly receives forty shares. He then sells thirty-six shares, realizing \$3,960, and retains 104 shares with a market value of \$11,440. The two stockholders are now in precisely the same position with respect to holdings and each has secured the same net amount in cash.

For consideration of the procedure associated with stock dividends on the investor's books see Chapter VII.

**Surplus Reservations.** The practice of earmarking earned surplus under special heads for the purpose of reflecting particular policies, programs, or contingencies represents a method of appropriating surplus without actual capitalization. The importance of the practice can easily be exaggerated, as surplus in itself may be viewed as a sort of general-purpose buffer or reserve. The decision to retain earnings is the important matter; the reservation of surplus under special titles is purely supplementary. Surplus reservations are not to be encouraged, moreover, for the purpose of obscuring the condition of the enterprise with respect to accumulated profits, or to make possible a resurrection of buried profits when current conditions are unfavorable and those in control wish to keep up appearances. At the same time no serious objection can be offered to well-considered and systematic subdivision of the surplus account, under captions and presentations which are not open to misunderstanding, and such subdivision may furnish some illumination and hence be of some advantage from the standpoint of financial administration.

In general surplus should be appropriated under a special head only upon definite resolution of the board of directors. Likewise reserved surplus should ordinarily be returned to unrestricted surplus only when such return is formally authorized.

Surplus reservation as compared with capitalization of surplus through

the issue of dividend stock has the advantage of simplicity of procedure and also affords opportunity for revision of policy. The second of these considerations is especially important. Once a section of surplus has been formally capitalized it has lost its character as a reservoir for dividend declarations and a buffer for losses, and its status as surplus can not readily be restored. Reserved surplus, however, is still surplus, and the restriction imposed may be removed whenever changing circumstances justify such action.

True surplus reserves should be distinguished from other types of accounts to which the term "reserve" is applied. A surplus reserve is a clear-cut section of undivided profits, and its character as surplus is not affected by the bare act of earmarking or appropriating. The nature of a reserve account may of course be altered as a result of events and developments following its establishment.

**Surplus Invested in Plant.** Surplus may be earmarked as a reserve for extensions or improvements either for the purpose of reflecting in the accounts the intention to restrict dividends and use the available funds for plant expenditures or to show that profits have already been invested in fixed assets and hence are not free for distribution to shareholders. The M Co., for example, earns a net profit in a particular year of \$5,000,000, but throughout the year the need for additional equipment and other facilities is such that all liquid resources in excess of working-capital requirements are expended as fast as they become available to meet bills incurred in connection with the acquisition of machinery and in new construction. At the end of the year the directors decide to give effect to the situation in the presentation of the stock equity by authorizing an appropriation of undivided profits in the amount of \$4,500,000 under the caption "surplus invested in plant additions." (The title prescribed in railway accounting is "reserve for additions and betterments.") The entries necessary to record this authorization are:

Surplus	\$4,500,000	
Surplus Invested in Plant Additions		\$4,500,000

This action, it should be understood, does not in itself involve any expenditure of funds and has no effect upon the plant account. It consists simply of a segregation of earned surplus under a special heading.

A reservation of surplus to indicate that the funds made available through profitable operations have been applied to plant expansion rather than to an accumulation of liquid assets does not diminish the amount of the legally available dividend reservoir, and if and when the cash position warrants there is no objection to basing a dividend declaration upon surplus drawn from the special account. Surplus invested in plant,

in other words, need not be viewed as a permanent appropriation. The transfer of all or any portion of such a reserve to general surplus, however, should be clearly reported in the periodic statements affected. There is something to be said in this connection for a systematic reversal of the appropriation entries in terms of the schedule of plant depreciation. Assume, for example, that the amount of depreciation annually charged to operation by the M Co. on a plant cost of \$4,500,000 approximates \$360,000. In this situation it would not be unreasonable to adjust the reserve each year as follows:

Surplus Invested in Plant Additions . . . . .	\$360,000	
Surplus . . . . .		\$360,000

On the other hand, if the funds liberated through the conversion of fixed assets are to be reinvested in plant at an early date the transfer from the reserve to unappropriated surplus would hardly be in order.

**Surplus Invested in Working Capital.** As a general rule surplus, like capital, represents a cross section of all resources rather than particular assets, and care must be taken to avoid setting up reserves which convey misleading implications as to where surplus is invested. Nevertheless surplus can usually be divided into two or three broad sections without relying upon questionable threads of connection.

As pointed out in the preceding section situations sometimes arise in which it is quite clear that the expansion of plant facilities is being financed through the retention of profits and in such cases an earmarking of surplus as a means of reflecting this condition is in order. The other main area in which profit funds may be employed is that of working capital. Thus the funds measured by earnings may be used to retire current obligations or to increase inventories or other current assets. Assuming that the business is growing and that the need for additional working capital is not transitory there is something to be said for an earmarking of surplus for the purpose of indicating the extent to which the need for increased working funds has been met by retaining profits.

For example, the M Co. begins business with the following status:

Current Assets . . . . .	\$100,000	Current Liabilities . . . . .	\$ 50,000
Plant Assets . . . . .	450,000	Capital Stock . . . . .	500,000
	<u>\$550,000</u>		<u>\$550,000</u>

During the following year the volume of business expands rapidly and the Company finds it necessary to carry larger inventories and a larger amount of customer credit. The profits for the year total \$50,000 and no dividends are paid. The condition at the end of the year is as follows:

Current Assets . . . . .	\$200,000	Current Liabilities . . . . .	\$100,000
Plant Assets . . . . .	450,000	Capital Stock . . . . .	500,000
		Surplus . . . . .	50,000
	<u>\$650,000</u>		<u>\$650,000</u>

If the entire amount of current assets at this point is necessary to carry on the operations of the business it appears that all of the profit funds are "tied up" in increased working capital and are not available for dividends as a matter of practical administration. In this situation the investment of surplus might be reflected by means of the following entries:

Surplus.	\$50,000	
Surplus Invested in Working Capital. . . . .		\$50,000

In this example it is assumed that expenditures for plant assets during the year are precisely equal to the accrued depreciation for the year. Needless to say an increase in working assets is likely to be accompanied by an expansion of plant facilities. Where this is the case accumulated surplus may be considered to be invested proportionately in the two areas.

Surplus invested in working capital, like surplus embodied in plant, need not be viewed as permanently dedicated. If conditions change so that less working capital is required it may be assumed that a portion of the impounded surplus has been restored to an unrestricted status.

**Free Surplus.** From one standpoint "free" or unrestricted surplus is all surplus which has not been specifically appropriated or reserved. From another standpoint free surplus is that which can reasonably be said to be represented by cash or other liquid assets not necessary to the operation of the business. According to this second method of determination free surplus measures the amount of profits which might reasonably be disbursed as dividends.

Should an effort be made to account for surplus in such manner as at all times to disclose the amount invested or restricted on the one hand and the amount of surplus effectively available for dividends on the other? No doubt there is something of a case to be made for such a splitting of surplus. Often a corporation report shows a huge surplus account when actually there is little or no practical possibility of declaring cash dividends in substantial amount. This is especially true where profits have been absorbed in plant account over a period of years and current earning power is low. For such situations a redescription of surplus account may be helpful.

See further discussion of the analysis of surplus in terms of utilization in Chapter XXX.

**Bond Retirement Reserves.** The contract with the holders of bonds or other senior security may place restrictions on dividends to common stockholders, and the earmarking of surplus accumulated in conformity with such restrictions is often desirable even if not required. The M Co., for example, issues five-year notes amounting to \$1,000,000 under an agreement which provides that 75% of all profits available for the common stock must be retained and applied to the retirement of notes, or to the accumulation of a retirement fund, until the entire issue has been redeemed or provided for. The profits for the first year amount to \$400,000 and surplus is accordingly appropriated in the amount of \$300,000. The entries are as follows:

Surplus							\$300,000	
Reserve for Note Retirement	.	.	.	.	.	.		\$300,000

To give full effect to the agreement a corresponding amount of cash must be deposited in a special account, presumably under a trusteeship, to be devoted immediately or later to note redemption. This process is continued until all notes have been paid, or funds sufficient to complete payment have been accumulated. The reserved surplus then becomes unrestricted, and may be returned to the general surplus account, thus:

Reserve for Note Retirement	.	.	.	.	.	.	\$1,000,000	
Surplus	.	.	.	.	.	.		\$1,000,000

Or it may be decided to segregate this section of surplus, which corresponds to the profit funds which have been utilized in reducing liabilities—in “buying out” the equity of the noteholders—under another special heading, as follows:

Reserve for Note Retirement	.	.	.	.	.	.	\$1,000,000	
Surplus Applied to Reducing Liabilities	.	.	.	.	.	.		\$1,000,000

It should be noted that where funds originating through retained earnings have been employed to liquidate indebtedness the accumulated surplus may be considered to be invested in the type of resources originally financed by borrowing. Thus if the funds received from noteholders in the example were invested in plant resources, and if there has been no decrease in the net amount of such resources, the resulting surplus might as well be labeled “invested in plant” as “applied to reducing liabilities.”

Care must be taken to distinguish between a subdivision of surplus established in connection with a program of security retirement and a fund of cash or other liquid resources accumulated for the purpose of redeeming outstanding obligations. The amount of surplus is not affected by the process of retirement (ignoring the adjustments which arise where the expenditures on account of retirement are more or less than the book value of the security eliminated), whereas the fund is entirely or largely

absorbed by the payments made. (See discussion of bond sinking funds in Chapter XXVIII.)

**Surplus Restricted by Stock Purchases.** In some states the corporation law provides that outstanding shares can be purchased for the "treasury" only to the extent that the amount so expended does not exceed the accumulated surplus. The purpose of such statutes, presumably, is to prevent a decrease of the stock equity below the level of the original formal capital, and surplus to the amount of the cost of treasury shares must accordingly be assumed to be restricted and not available for dividends. The R Co., for example, with undivided profits of \$1,000,000, expends \$700,000 in acquiring outstanding stock. To reflect the impounding of surplus as a result of this action the following entries are desirable:

Surplus		\$700,000
Surplus Restricted by Acquisition of Capital Stock		\$700,000

Reducing surplus by the cost of the treasury shares, a procedure which has been recommended in some quarters, is neither necessary nor proper. The cost of stock acquired, as explained in an earlier chapter, always should be interpreted as offsetting par or stated value and paid-in surplus, if any, to the extent of the applicable amounts appearing in the capital accounts, with the balance handled as an actual or potential adjustment of earned surplus. If the cost of stock acquired is charged in full to surplus the result is a definite misstatement of both main divisions of the stock equity.

When treasury shares which have been purchased are formally canceled and retired the amount of surplus restricted by their acquisition is released, subject to partial absorption by the retirement entries.

Reservations of surplus not required by contract or statute are sometimes made by the management as a means of reflecting intention to retire preferred stock or other securities out of profit funds.

**Contingency Reserves.** A section of surplus is sometimes earmarked to cover the estimated amount of the loss which may result from some particular undertaking, transaction, or condition in which asset values are jeopardized to an unusual degree. Thus a reserve may be established equivalent to the investment made in a foreign branch, in the face of disturbed political conditions, or the cost of experimental equipment, or the amount of any other highly speculative commitment. Another example is found in the reserve for possible or probable decline in inventory prices or the value of securities owned. Possible losses from suits, strikes, unfavorable legislation, etc. are also sometimes reflected in the accounts through special surplus appropriations.



The practice of appropriating surplus in the form of one or more loss reserves should not be carried to extremes. Reservations which are nothing more than gestures in the direction of conservatism are more likely to obscure than to illuminate and are to be avoided. The foregoing of dividends and the accumulation of a general surplus buffer, without the use of fancy labels, give sufficient indication of conservative policy except in situations where a definite basis for anxiety exists.

Care must be taken to distinguish between credit balances covering losses which can reasonably be accrued on the basis of known conditions, and which must not be interpreted as surplus, and reserves for contingencies. See discussion of equalization reserves.

**Reserves in Relation to Income Statement.** In the discussion of income-sheet presentation in Chapter I it was recommended that the final section of the statement include the opening surplus balance, all adjustments made during the period, and the final balance of surplus as this balance will appear in the complementary report, the balance sheet. It was also pointed out that where surplus is appropriated in the form of reserves, to which special losses may later be charged, it is necessary to take the reserve accounts into consideration in preparing the surplus section of the income statement. This may readily be done, it was suggested, by including reserve balances in the beginning and ending surplus figures, with all actual charges and credits (exclusive of the reservations) reported as income-sheet items.

Assume, for example, that the net profit of the M Co. for the first year of operation is \$100,000 and that of this profit the amount of \$50,000 is appropriated as a reserve for contingencies. There are no dividends and no special loss or gain items. The income sheet would then conclude with the amount of \$100,000 as the first surplus, and the process of earmarking would be referred to only by way of footnote or supplementary schedule as indicated by the following excerpt:

Addition to surplus (in this case net profit) . . . . .	\$100,000
Surplus at beginning of period . . . . .	None
Surplus at end of period, per balance sheet *	<u>\$100,000</u>

\* Composition of surplus:

Reserve for contingencies . . . . .	\$ 50,000
Unappropriated surplus . . . . .	50,000
	<u>\$100,000</u>

For the second year the net profit figure, not including losses of \$10,000 charged directly to the reserve, is \$75,000. Again there are no dividends. The appropriation to the reserve for the year is \$25,000, which means a

credit balance in the account of \$65,000. In the income sheet the concluding section is as follows:

Addition to surplus (before special losses) . . . . .	\$ 75,000
Surplus at beginning of period . . . . .	\$100,000
Special losses (not applicable to current income) . . . . .	10,000
	<u>90,000</u>
Surplus at end of period, per balance sheet * . . . . .	<u>\$165,000</u>

\* Composition of surplus:

Reserve for contingencies . . . . .	\$ 65,000
Unappropriated surplus . . . . .	100,000
	<u>\$165,000</u>

**Liability Reserves.** The indiscriminate use of the term "reserve" in accounting practice is unfortunate. Particularly questionable is the use of this label to describe liabilities.

Designating liabilities as reserves is least objectionable where circumstances are such that the amount of the obligation must be estimated or the parties to whom payment must be made have not been definitely determined. Thus "reserve for Federal taxes" represents the amount of tax estimated to be accrued where the actual assessment is uncertain owing to belated legislative action, difficulty of interpreting existing laws and regulations, or questions of constitutionality; "reserve for improvements on property sold" is the estimated liability to buyers to furnish improvements as provided in sales agreements; "reserve for guaranties" measures the estimated cost under guaranties given of servicing and repairing equipment already delivered to customers; "reserve for premium redemption" shows the amount which it is expected will be required to take care of outstanding premium coupons; "reserve for injuries and damages" expresses the estimated expenditures which must be made on account of pending claims of patrons or employees; "reserve for containers" exhibits the estimated cost of redeeming containers in the hands of customers at an agreed price or allowance.

Liabilities of the "deferred-revenue" type—the amounts of which are definitely known—are likewise often called reserves. Examples are "reserve for outstanding tickets," in the milk business, "reserve for receipts on unfilled orders," in the mail-order field, "reserve for unearned subscriptions," in the magazine field, and the "reserve for premiums" of an insurance company.

The tendency among accountants to exclude deferred-revenue balances from liabilities is to be deplored. Clearly the amount of such balances cannot be treated as a part of surplus; it is equally clear that it is only begging the question to insist that they are merely "reserves," attaching neither to the stock equity nor to the liabilities. When a customer pays

for one or more deliveries of goods or services in advance and the amount received is absorbed in the vendor's cash a clear-cut liability arises to the extent of the deposit; in effect the customer's cash is held "in trust" until released by the furnishing of goods or services as agreed. It is true that the cost incurred in canceling the obligation may be less than the amount of cash received, and this fact justifies segregation of liabilities of this class. It is impossible, however, to recognize an obligation of less than the full amount paid in advance, and not canceled by deliveries, as this would have the force of an accruing of the profit margin—if any—in advance of completed sale.

The only excuse for attaching the term "reserve" to liabilities for unclaimed wages, dividends, etc. is the fact that some of the claims may never be presented for payment. For ordinary accruals of wages, royalties, interest, etc. the designation "reserve" is entirely uncalled for.

**Contra-Asset Reserves.** Accounts showing estimated accrued depreciation, depletion, and amortization, still commonly labeled "reserves," represent offsets to property costs or values rather than surplus, as has been emphasized in other connections, and should never be reported in combination with true surplus balances. The use of the term "reserve" in this connection is particularly objectionable as no doubt it is in part responsible for the persistent tendency to interpret contra-asset accounts as accumulated funds. It is true that surplus and valuation reserves which are clearly distinct in essential character overlap in practice to the extent that accruals of depreciation, etc. are either overstated or understated, but this simply means that the accuracy of reported surplus depends on the accuracy of the accounting for charges to revenues and has nothing to do with the use of contra accounts in booking such charges.

Some nonsurplus reserves cannot easily be classed as either liabilities or contra-asset accounts. Reserve for collection expense is an example. The estimated cost of collecting outstanding receivables is clearly not an obligation and the fact that such cost will be incurred does not indicate that customers' balances are overstated from the standpoint of probable collections. The amount of the reserve, however, can be viewed as an offset to the amount to be collected which must be taken into consideration in determining net realizable value.

**Equalization Reserves.** Both short-term and long-term "equalization" reserves may also be difficult to interpret for statement purposes. A reserve for estimated plant removal cost, where no net salvage value is expected, is usually combined with the depreciation allowance as an offset to the gross book value, although such cost does not represent an expiration of recorded value as does accrued depreciation. An operating reserve used in allocating to particular months annual expenditures for

advertising, for example, may have either a debit or credit balance at interim points, and while a debit balance can be interpreted as a form of prepayment it seems a bit far-fetched to view a credit balance either as an offset to working capital or as a liability. Perhaps the best solution, if a definite decision is required for balance-sheet purposes, is to view a credit balance as a short-run adjustment of surplus. It should be added that the use of an equalization reserve to spread charges in monthly or quarterly reckonings in terms of an annual budget, with a closing out of the balance of the reserve at the end of the year, is not objectionable practice, whatever may be the merits of long-run apportionment.

The most important case of the long-run equalization reserve is the reserve for fire insurance established by the so-called "self-insurer." Such a reserve is ordinarily set up by charging operations period by period with either estimated average losses or the cost of an adequate program of insurance, plus a more or less substantial amount as a safety factor. This means that the account is typically a combination of a long-run equalization reserve and a reserve for contingencies. Under these circumstances how should a credit balance in the insurance reserve be interpreted? To the extent of an amount carefully calculated on the basis of experience it does not appear unreasonable at first sight to interpret the reserve as a long-run offset to property account. Upon a more careful examination of the matter, however, even such a qualified position is found to be untenable. The only defensible interpretation is that which construes the entire credit balance of the account as a pure surplus reserve (and a debit balance, owing to write-off in excess of amount reserved, as a loss—an offset to surplus). Fire losses do not accrue like depreciation, and hence the insurance reserve credit is not an offset to property. For example, freight cars which have not been destroyed are sound assets, regardless of the statistical plausibility of the scheme of accruing losses. Existing property, moreover, is not placed in greater jeopardy for the future as a result of no losses or small losses in the current or preceding periods.

There is serious doubt as to the propriety of any scheme of charging operations with estimated average losses due to fire or other casualties. Strictly speaking the phrase "self-insurer" is a misnomer. There is only one way to insure, and that is to buy appropriate insurance. This does not mean that insurance must be carried under all circumstances. If a concern has many types and units of property, widely scattered, it may well be good business in the long run to assume the risks of loss in lieu of paying insurance premiums. But this is not self-insurance. By buying insurance the enterprise is able to remove certain risks attaching to its operations; by doing without insurance the enterprise is in effect

deciding to accept certain additional hazards in carrying on its activities. Under one condition the cost of insurance is an operating charge covering the service rendered by the insurance company in taking over certain risks; under the other condition irregularly occurring losses are substituted for a regular charge. If there is no insurance the enterprise is powerless to alter the impact of losses; the spreading which results from the accruing of a reserve by charges to operations is purely artificial.

A serious objection to the accruing of reserves to cover possible casualties by means of charges to revenue or income, coupled with the practice of charging actual losses to such reserves as they occur, lies in the misleading income statements which result. The substitution of hypothetical charges for actual losses at the best brings about an artificial smoothing of yearly figures and at the worst leads to downright understatement of income over a long period. It is better practice to report all losses in the yearly statement (which does not preclude showing charges in the surplus section) and either omit surplus reservations or show them as supplementary data in a reconciliation schedule.

The building up of a special fund of cash or securities for the purpose of replacing property when casualties occur is a process distinct from that of accruing a reserve. Whether or not such a fund is desirable depends on the circumstances. In general there is little to be said for the accumulation, over a long period, of a fund large enough to afford complete "protection."

**Book Value and Surplus.** Book value is the amount of the stock equity as shown by the accounts of the issuing corporation, including those which register the effects of operation and other changes; and book value per share is total book value divided by the number of shares actually outstanding. Where there is but one class of stock outstanding the only problem arising in computing book value is the interpretation of particular accounts. Amounts appearing in treasury stock and other offsetting accounts must be deducted, and all elements of surplus, however labeled in the ledger, should be included. Occasionally reserves are established under conditions which make it especially difficult to determine their character. Surplus which has been appropriated in the form of dividends payable is usually viewed as a liability rather than an element of stock equity.

Where preferred stock is of the typical par-value type, with no participating features and no provision for redemption, and dividends are not in arrears, the equity of the holders may be assumed not to extend to earned-surplus account. The book value of such stock from the standpoint of amount invested, however, is either more or less than par where the stock is issued at a premium or a discount. In the case of preferred

issues with special features finding a satisfactory basis on which to assign surplus to the senior and junior issues may be very difficult if not impossible. For example, if preferred stock with a par value of \$100 per share, and which has been issued at that figure, has a prior claim to assets in the event of liquidation of \$150 per share, the assumption that the book value of the preferred is \$150 may result in an unreasonably small book value—from the standpoint of the going concern—for the common stock or even in the ridiculous conclusion that the book value of the common is less than zero. In such a situation it is proper, in calculating and presenting the book value of common stock, to assign to the preferred stock only the amount invested, with the liquidation situation included in the accompanying explanation. If the preferred stock participates with the common in excess net assets, after par values of both issues have been taken care of, the total book value may ordinarily be assigned in accordance with the liquidation conditions, provided the basis is clearly reported.

From the standpoint of the going concern a premium which must be paid to preferred shareholders in the event of redemption is not a recognizable portion of the senior equity, particularly where there is no due date and retirement is optional with the corporation.

Dividends in arrears on cumulative preferred stock represent a claim to surplus outranking the rights of holders of junior stock, and the effect of such a claim should be recognized in the balance sheet, at least to the extent of a footnote, and in computation of book value. Unappropriated dividends on noncumulative preferred stock are likewise generally construed as an equity of the preferred shareholders where earned.

The portion of book value assigned to preferred stock of the no-par type should in general be determined by accepting as a starting point either the amount paid in or the stated amount to be given priority in liquidation, whichever seems the more reasonable under a given set of conditions, with suitable modification on account of participating rights or other special features as outlined above.

In some cases the rights of the different classes of stockholders are such that precise assignment of surplus is more misleading than helpful. In this event a showing of respective paid-in values and total surplus, supplemented by a listing of the principal rights and relationships involved, may be all that can properly be reported when the question of book value is raised.

**Secret Reserves.** A "secret" reserve is an element of the proprietary equity which is either completely suppressed or is not reported as such. Reserves of this kind result from such practices as failure to capitalize particular plant assets, charging additions and improvements to mainte-

nance, overstatement of bad debts, setting up excessive depreciation or depletion, omission of accrued revenues and receivables, understatement or omission of inventories or prepayments, and overstatement of liabilities. Where it results from a recognized accounting procedure consistently employed, a secret reserve is merely a technical matter and may not be seriously objectionable. On the other hand deliberate understatement of the stock equity, with the intention of misleading or impairing the rights of any parties at interest, cannot be too strongly condemned.

### QUESTIONS

1. What are the two main classes of surplus? Indicate the principal sources of each division of surplus and comment on the disposition of special adjustments. What is meant by "valuation surplus"?

2. "Discount on stock may be combined with deficit under a single heading." Do you agree?

3. "All annual profits should be distributed to shareholders in the form of cash dividends. Then if additional capital is needed it should be secured by offering the shareholders the right to subscribe for additional stock." Discuss carefully.

4. "All losses, of whatever character, should be charged first to current income and second to accumulated profits. Only when earned surplus is entirely exhausted may losses properly be absorbed through paid-in surplus or capital. In no event should a deficit be carried forward." Discuss carefully.

5. With illustrative entries show how pro-rata cash contributions by shareholders to absorb a deficit should be recorded. How should cash contributions by one or more stockholders, not in proportion to holdings, be handled?

6. "In some cases an apparent donation amounts to nothing more than a transfer from the capital account to surplus." Explain and illustrate. Is creation of surplus out of capital ever justified?

7. How may surplus be capitalized? Indicate the principal reasons for such capitalization.

8. What is the effect of the *declaration* of a stock dividend upon: (1) total book value of stock; (2) market price per share; (3) surplus; (4) the proportionate equity of each shareholder? Answer same questions substituting *issue* for *declaration*.

9. Discuss the "entity" and "agency" conceptions of the relation of the corporation and the stockholder, and indicate the bearing such conceptions have upon the question of the significance of the stock dividend.

10. With an illustration show how a stockholder may "declare his own dividend."

11. What are surplus reserves? Is their use, when not required by contract, justified?

12. With entries illustrate the use of a special account for surplus invested in plant. Is such surplus legally available for dividends?

13. What is meant by "surplus invested in working capital"? "Free surplus"?

14. Discuss the use of bond retirement reserves. Should such a reserve be returned to general surplus when the security in question has been redeemed?

15. Using an illustration contrast a "reserve" for bond retirement and a "sinking fund" for bond redemption.

16. "Where the controlling statute limits the amount to be expended in acquiring outstanding stock to the accumulated surplus, the cost of all stock purchased should be charged to surplus account." Do you agree? Explain.

17. Under what circumstances are contingent loss reserves unobjectionable? Illustrate the relation of such reserves to the income statement.

18. Illustrate the use of liability reserves. Support the view that a "deferred-revenue" reserve is a liability.

19. What are contra-asset reserves? How would you classify "reserve for collection expense"?

20. With illustrative entries show how a short-term equalization reserve should be handled. Interpret interim reserve balances.

21. "If a concern prefers to carry its own insurance and charge operations with an amount which would otherwise be expended for insurance the actual losses incurred may reasonably be absorbed through the insurance reserve provided." Do you agree? Discuss carefully.

22. If asked to compute the book values per share of the common and preferred stock of a particular company on a given date how would you deal with each of the following: reserve for depletion; contingency reserve; excess of call price of preferred stock over par; premium paid in by preferred stockholders; stated value of common stock; paid-in surplus on common shares; unappropriated earned surplus; reserve for fire insurance; reserve for unearned magazine subscriptions.

23. Define "secret reserve." Discuss the origin and use of such reserves.



## XXVII

### FIXED LIABILITIES

**Character of Long-Term Debt.** The fixed liabilities—the “funded debt”—of corporate enterprises are commonly in the form of bonds or notes. Such obligations may be specifically secured or they may rest on the general financial strength of the borrower. Mortgage bonds and notes are based upon some form of mortgage and the provisions of the underlying instrument attach to the individual security issued. The property subject to lien is commonly confined to the fixed tangible assets. Collateral bonds are issues secured through deposit by the issuer, in trust, of stocks or other securities. A specialized type of secured bond is the equipment-trust obligation. Debenture bonds and notes are issues based upon the general credit of the issuing organization and rank with other unsecured claims. Bonds, like stocks, are sometimes convertible under specified conditions. Income bonds—bonds on which interest is payable only if earned—have not been popular with investors and are now seldom employed, even in reorganizations.

Bonds and notes are issued in various denominations, expressed in par value. The most common unit used by business corporations is the bond of \$1,000. The bonds of the particular issue may be divided into registered bonds and coupon bonds. The former are bonds recorded in the name of the holder on which interest and principal are paid on the due dates upon the initiative of the issuer or its agent; the latter are bonds not recorded on the corporate books by names of holders and payable—principal and interest—to bearer. In the case of nonregistered bonds the interest rights are represented by a series of detachable coupons. Interest is usually payable semiannually, and payment may be effected directly or through a specified agent.

The borrowing corporation almost always reserves the right to call any or all of its outstanding bonds for redemption at a stated price. Retirement of particular blocks prior to maturity may also occur as a result of purchases by the issuer on the open market or through special negotiations. Sinking-fund arrangements of various kinds are often employed in connection with the program of debt payment.

Bonds and long-term notes are usually issued for the purpose of financing the acquisition of fixed assets or to retire similar securities. Occasionally an embarrassing floating debt is funded for a period of years. Long-term borrowing is sparingly employed by industrial corporations, but has been a major feature of the financing of most railways and other utilities.

A fixed liability may be in the form of a mortgage or similar obligation which is held directly by the creditor instead of being made the basis of a bond or note issue. This condition is especially common among unincorporated enterprises. A special type of long-term debt is that represented by a purchase contract arising through the acquisition of property on a deferred-payment plan.

Although not a part of the residual or proprietary equity the outstanding fixed debt of a corporation may be viewed as an element of the capital structure, broadly interpreted. This is especially true in the public-utility field where fifty per cent or more of all money employed is commonly raised through bond issues which are replaced by similar securities as they mature. Here the creditors are contractual investors, with interests closely allied with those of the stockholders. Control of operating activity, it is true, commonly rests largely in the hands of stockholders rather than bondholders, but in the event of serious financial difficulty appearing the latter group are likely to be shifted to the dominant position. Bonds which are convertible into stock, it may be noted, represent potential proprietary capital.

In Chapter VIII the accounting for bond contracts was considered from the point of view of the investor. In this and the following chapter the subject is discussed from the standpoint of the issuing corporation.

**Issuing and Recording Procedure.** The first step in issuing bonds or similar securities is formal authorization, including decision as to amount, security, term, issue date, and nominal rate of interest, and this may require a special meeting of stockholders. The second step, in the typical situation, is the undertaking of negotiations with investment houses to arrange for the marketing of all or a portion of the authorized issue. When a suitable proposal has been received and approved by the board of directors a definite underwriting agreement is entered into between the investment bankers and the corporation. Such agreement may amount to a contract of sale by which the bankers acquire the security on their own account for a stated amount, or it may represent an arrangement by which the bankers undertake to manage the marketing of the issue at a price and for a commission mutually agreed upon. All necessary legal details associated with the issue must be worked out, and the bonds or notes must be printed and signed by corporate officials and the desig-

nated trustee. The final step consists of the delivery of the securities to the underwriter and the receipt of the money by the corporation.

The records and entries required in connection with the issue of bonds or long-term notes are similar to those employed in issuing capital stock. Formal ledger entries covering the authorization are not necessary but are sometimes used as a means of general control. The following is illustrative:

Unissued Bonds		\$1,000,000	
First Mortgage 6% Bonds Authorized			\$1,000,000

Assuming the bonds are sold outright to an investment house or group the general entries, in summary, are as follows:

(1)			
Investment Company		\$1,000,000	
Unissued Bonds			\$1,000,000
To record delivery of bonds			
(2)			
Cash		1,000,000	
Investment Company			1,000,000
To record receipt of buyer's check			
(3)			
First Mortgage 6% Bonds Authorized		1,000,000	
First Mortgage 6% Bonds Outstanding			1,000,000
To recognize change in status of bonds			

If the memorandum authorization entries are not made the credit to unissued bonds in the foregoing is replaced by a credit to bonds outstanding and entries numbered (3) are omitted. Where the bonds are delivered in blocks and the money is likewise received in installments the entries required are correspondingly extended.

If the underwriting firm or syndicate acts merely as the agent of the corporation in taking and collecting subscriptions, and the subscriptions are accounted for on the issuer's books, the entries (omitting the possible authorization entries) take a form somewhat as follows:

(1)			
Bond Subscriptions (also individual accounts)		\$1,000,000	
First Mortgage 6% Bonds Subscribed			\$1,000,000
To record subscriptions as reported by underwriters			
(2)			
Underwriters		1,000,000	
Bond Subscriptions (also individual accounts)			1,000,000
To record collection of subscriptions by underwriters			
(3)			
Cash		1,000,000	
Underwriters			1,000,000
To record receipt of collections from underwriters			

(4)	
First Mortgage 6% Bonds Subscribed . . . . .	1,000,000
First Mortgage 6% Bonds Outstanding (also in- dividual accounts of registered holders) . . . . .	1,000,000
To record delivery of bonds to cover paid subscrip- tions	

Entries would also be necessary under either plan to cover the accruing liability to underwriters for services rendered and the discharge of such liability.

Where the underwriters, although not buying the security outright, assume complete responsibility for selling and delivery, the recording of subscriptions in detail on the issuer's books may not be deemed necessary. In any event, however, a complete record of individual registered holders must be maintained by the corporation. It is advisable to segregate the amount of registered bonds from the total of coupon bonds in the general ledger as a clear-cut controlling account for the underlying bond ledger. With respect to coupon bonds no subsidiary ledger is maintained, as such bonds can be transferred without reference to the issuer's records. Nevertheless the corporation may find it desirable to keep a list of all original holders of coupon bonds.

Subscriptions taken and collected directly by the issuing company are recorded as shown above, omitting the account with the underwriters. Where individual subscriptions are payable in installments the amount is sometimes distributed in a series of installment accounts for the purpose in particular of segregating amounts overdue. (See discussion of stock subscriptions on installment plan in Chapter XXII.)

Bond subscriptions, to the extent that they represent claims against responsible parties, are a sound receivable and may accordingly be reported as an asset. The amount should be segregated on the balance sheet, however, and should not be included in current assets where the use of the funds as received is definitely restricted to investment in fixed assets or refunding of outstanding long-term securities. Moreover, bond subscriptions like stock subscriptions are peculiar in that they represent funds in the process of being raised rather than claims resulting from the furnishing of valuable considerations, and some accountants therefore prefer to report the balance of unpaid subscriptions as a contra to bonds subscribed.

The amount of authorized bonds not covered by subscriptions may be reported in the balance sheet parenthetically, or by means of a footnote. Or the full amount may be shown in the short money column, offset by the unissued balance.

**Recording Bonds Issued at Discount.** Corporation bonds and notes frequently have been issued at less than par or maturity value, and in

this situation there arises the question of how the liability to the issuer should be recorded. On the investor's books, it was pointed out in Chapter VII, it is good practice to charge the investment account with the actual cost of the security, disregarding par or maturity values. On the corporation's books, however, the practice of recording face value in the main liability account is universally followed and is not objectionable provided the proper supplementary accounts are introduced and the facts are correctly reported in the statements.

The M Co., to illustrate, authorizes an issue of first mortgage, 5% bonds amounting to \$1,000,000, and sells the issue directly to investors at a price of 95. Assuming that subscriptions are involved but that unissued bonds are not recognized in the accounts the required entries may be outlined as follows:

(1)			
Bond Subscriptions (also individual accounts)	\$	950,000	
Discount on Bond Subscriptions		50,000	
First Mortgage 5% Bonds Subscribed (Par)			\$1,000,000
To record taking of subscriptions			
(2)			
Cash		950,000	
Bond Subscriptions (also individual accounts)			950,000
To record collection of subscriptions			
(3)			
First Mortgage 5% Bonds Subscribed (Par)		1,000,000	
First Mortgage 5% Bonds Outstanding—Maturity Value (also individual accounts of registered holders)			1,000,000
To record issue and delivery of bonds			
(4)			
First Mortgage 5% Bonds Outstanding—Discount		50,000	
Discount on Bond Subscriptions			50,000
To close temporary discount account			

The use of matched titles for par value and discount is helpful in that it emphasizes the relationship between the two elements and discourages improper interpretation later. As a matter of convenience the accounts of individual bondholders may well be maintained in terms of par or maturity value. The bond ledger is then controlled by total par value, without reference to the discount.

The subsequent treatment of discount is discussed later.

**Interpretation of Discount.** One of the least excusable of the standard practices of accounting is that which treats bond discount on the issuer's books as an asset either related to such current balances as unexpired insurance and prepaid rent or as a long-term deferred charge allied to organization cost. Unaccumulated discount on a bond or similar security is in no sense an asset, but represents an element of the total "interest" charged during the life of the contract. The discount is the

difference between the amount of the actual capital received from the investor and the par or face value—the amount payable at maturity. It is neither a prepayment of cost by the borrower nor income received in advance by the investor; it is rather that portion of the effective interest which remains unpaid by the corporation and uncollected by the bondholder until the due date of the security.

From the standpoint of the issuing corporation the matter resolves itself into the question: what is the true liability of the borrower, at the outset and during the term of the security, when the amount received from the investor is less than the face or maturity value? This question can best be answered by a careful consideration, in turn, of the possible measures of the original liability. These are:

1. Total amount payable, interest and principal, under the terms of the contract.
2. Amount due at maturity.
3. Actual amount received from investor.

Assume, for example, that a company issues a twenty-year bond, agreeing to pay the investor \$25 every six months through the life of the security and \$1,000 twenty years from date of issue, and receives therefor \$950 in cash. In this case, evidently, the corporation obligates itself to pay a total of \$2,000, and in a very real sense the liability assumed is actually this amount. The borrowing enterprise promises to pay the annuity of \$25 just as explicitly as it promises to pay the maturity value, and all of the annuity installments become due and payable in full before the maturity date. At the same time it is equally clear that this total liability is not the true liability to be recognized in the accounts at the date of issue. To set up \$2,000 as the initial liability, with a discount or deficit of \$1,050, would imply that the borrower was willing to become immediately obligated for \$2,000 although receiving only \$950—an obviously ridiculous interpretation of an ordinary commercial transaction between two parties who may be assumed to be in good financial standing and equally desirous of reaching an agreement. Such a treatment, further, would be unreasonable in that it would ignore the earning power of the funds received. Indeed the borrower is not justified in entering into such an arrangement unless the amount received for the bond, \$950, can be expected to produce a net return of at least \$1,050 during the twenty-year period.

Adoption of the second alternative—the usual practice—is likewise seriously objectionable. If the liability immediately effective for accounting purposes is \$1,000, the maturity value, it follows that the difference between this amount and the sum received, \$50, is either an outright loss or an asset. To hold that the discount is a loss is untenable.

The corporation willingly accepts the terms, and sees in the transaction an equitable arrangement in no way involving a dissipation of assets or any form of deficit. It is equally difficult to accept the theory that the discount is an asset. Discount is the *difference* between the money or other property received for the bond and the maturity value; it is not an *addition* to the money or other property. In fact to hold that discount is a true asset is tantamount to insisting that the actual resources or property received must invariably total the face value of the security, regardless of the price at which issued. This would deny the existence of discount, the phenomenon under consideration! To argue as some seem to do that discount is neither a loss nor an asset but a "deferred charge" to operation or to income simply begs the question; the legitimate deferred charge is nothing more or less than a cost factor properly applicable to future activities.

It must be admitted that if discount is set up as a deferred charge and such charge is systematically amortized by adjustment of periodic interest the proper effect upon succeeding income statements is secured and the impropriety of the treatment is confined to poor balance-sheet presentation. If discount on bonds issued is charged directly to income or surplus as a loss the immediate effect is to understate the proprietary equity and the later effect is to free the income statements through the life of the bonds from a portion of the true interest burden. This procedure, accordingly, results in a continuing error, in both statements, from the time the bonds are issued until date of payment.

The third alternative is the only fully acceptable one. The effective liability at the outset is the actual amount received from the investor. This conclusion is obviously reasonable; in a commonplace and supposedly equitable transaction it is to be expected that the immediate obligation incurred by the borrower will be neither more nor less than the amount of money or equivalent obtained. It also leads directly to a sound program of discount accumulation. The liability to begin with is the amount received, \$950; the liability at maturity is clearly \$1,000; the difference is made up through the systematic accumulation of the discount, \$50, by adjustment of periodic interest charges through the application of the yield rate implicit in the terms of the loan. At all interim points the liability is the sum of the original obligation and the accumulation to date of that portion of the interest element which is retained until maturity. This treatment involves no padding of assets or charging off of fanciful losses.

It may be objected that the true legal liability is the face or maturity value since this amount becomes due and payable immediately in the event of default. This point may be met in some measure by calling

attention to the view, generally accepted, that accounting principles and procedures should be developed primarily from the standpoint of the going concern rather than that of the insolvent or liquidating enterprise. Moreover, settlements in bankruptcy and reorganization are presumably dictated in some degree by considerations of equity, and to ignore a substantial element of unaccumulated discount would be decidedly unfair. Suppose, for example, that shortly after issuing a block of debenture bonds at a discount of ten points the issuing company became insolvent. Is it not clear that in making a settlement the debenture bondholders should be treated as on a different footing from creditors of the same legal class whose claims represent contributions of 100 cents on the dollar? It must also be remembered that the nominal claims of creditors against defaulting corporations are not, in general, actually paid in full.

The conventional treatment no doubt is in part the result of traditional overemphasis of stated face values coupled with a failure to recognize clearly the basis on which the issue price of a bond rests. As has been pointed out over and over again by the actuaries the amount which the investor will bid for a bond represents his valuation of the interest annuity and the amount due at maturity in the light of the conditions of risk, marketability, etc. associated with the security offered. If the stated or coupon rate is not as high as that required by the investor for the class of security issued the value of the security is less than the face value. The price in this case is the present value of the interest annuity at the required rate plus the present value of the sum due at maturity computed at such rate. If the stated rate is as high as or higher than the market rate, on the other hand, the security will bring a price of par or better. Even where the bond is issued at par it should be recognized that the price paid *coincides* with par but does not *represent* par. If the bond carries no interest rate—that is, if the nominal rate is zero—the entire amount of interest paid by the issuer and earned by the investor is in the form of discount. See discussion of bond valuation, and treatment of non-interest-bearing bonds, later in this chapter.

In this connection the discussion of bond investments in Chapter VIII may be referred to with advantage. It is universally admitted that the asset acquired by the bondholder is measured by the cost of the bond—the amount paid in or invested. If this is sound, how can it be maintained that the other party to the contract, the issuing company, can incur an immediate obligation in excess of the amount received?

**Discount as "Prepaid Interest."** Especially objectionable is the practice of labeling discount on bonds or notes—the difference between actual proceeds and the amount due at maturity—as "prepaid interest," and this treatment requires further comment. Interest is a charge for the use



of funds as time elapses, and in a strict sense there can be no such thing as prepaid interest. If, indeed, the borrower attempted to prepay interest by making a disbursement to the investor at the time the bonds were issued the amount of such advance would act as an offset to the amount received from the investor, thus reducing the actual net proceeds—the amount of the true initial principal. In the case of a loan effected at a discount the borrowing company actually makes no advance or prepayment whatsoever. Far from being “prepaid” interest the amount of the discount represents *unpaid* or future interest—that portion of the total interest which is not paid until the date of maturity.

**Financing Cost versus Discount.** It is common practice to lump actual discount with the legal fees, printing costs, underwriting commissions, and other charges associated with the issuing of bonds, but this is not good accounting. The various service costs which must be incurred in raising capital are a genuine asset (not a money fund but a legitimate cost factor) and should be dealt with accordingly. Where such costs are incurred in issuing a terminable security it is reasonable to assume that their significance expires during the life of the security, and complete amortization in this period is therefore indicated. (The fact that a portion of such costs might have a long-run effect on intangible assets, as the concern becomes established and financing costs fall, can be ignored.) The amount of the periodic expiration should be charged to revenue as a general financial expense. As a rule a straight-line scheduling of amortization is satisfactory.

For example, the M Co. incurs costs of \$75,000 in issuing twenty-year bonds. The entries recognizing such costs, in summary, are:

Bond Issue Cost . . . . .	\$75,000	
Cash (or equivalent) . . . . .		\$75,000

The entries covering amortization for one year are:

Amortization of Bond Issue Cost . . . . .	\$ 3,750	
Bond Issue Cost . . . . .		\$ 3,750

The captions used may of course be modified in various ways. Often it is advisable to show such costs in the ledger broken up into the component elements of legal cost, commissions, etc. A contra account might be established to show the accruing write-down, original cost thus being retained in the records, but this is not usually considered necessary.

Where payments for legal and other services are in the form of securities of uncertain value the amount of the actual cost incurred in raising capital may be indeterminate and the recorded amount may be unreasonable, but this possibility—also present in the case of the cost of plant

assets—does not warrant a generally careless treatment of financial charges.

The distinction between the cost of raising capital—the amount actually paid for services rendered—and true discount—the excess of par value over the amount paid by the original buyer—is sometimes obscured by the conditions under which the security is issued. An investment group, for example, underwrites an issue of M Co. bonds amounting to \$1,000,000, par, the understanding being that marketing of the bonds is entirely under the control of the syndicate and that the issuer is to receive a price of 90 regardless of the terms under which the bonds are distributed. The bonds are actually sold by the underwriters at an average price of 95 and the agreed amount is remitted to the corporation. In this situation what is the amount of discount and what, if any, is the cost of putting out the bonds? The difficulty lies in the interpretation of the transaction. Did the M Co. sell the bonds to the syndicate at a discount of ten points, or did the Company in effect sell the bonds to various parties for 95, paying the syndicate five points for its services? Who, in other words, is the original bondholder? The amount of discount is determined by the initial decisive transaction; the records of the issuing company are not affected by subsequent transfers from one party to another. Evidently the interpretation to be adopted hinges upon the precise legal conditions obtaining. In the situation assumed the transaction between the M Co. and the investment group probably should be construed as an outright sale, with a resulting discount of ten points and no explicit cost of raising capital. On the other hand had the corporation been a party to the setting of the distribution price of 95, collected the entire proceeds from the underwriters, and remitted the amount of five points as a commission, the relationship should presumably be considered that of principal and agent, and a correct treatment would then require the recognition of a cost of financial services.

The position taken may be objected to on the ground that it seems to make the amount of capital funds raised hinge upon highly technical legal considerations rather than upon economic realities. Is there any practical justification, it may be queried, for recognizing asset values of \$90 in one case and \$95 in another, when the net proceeds and other essential conditions are identical in both? The only possible way of answering this question is to call attention to the fact that accounting endeavors, to begin with, to report the effects of business transactions, taking place in a legal framework, from the standpoint of the particular enterprise. The costs of the enterprise are the costs actually incurred, not costs as they might have been under other—and perhaps very similar

—conditions. And costs are not incorrectly recorded because they are not identical with costs of similar factors acquired by other businesses, or by the particular enterprise under other circumstances. Costs vary with terms of payment, quantity purchased, and other conditions. A concern selling goods on both wholesale and retail markets buys services and hence incurs costs in the retail division that are not found in the wholesale business. A concern erecting a building and deciding to dispense with an architect incurs no cost for architectural services, but it does not follow that the cost of such service, when actually incurred, is to be excluded from the total investment in plant. Similarly the fact that an enterprise which elects to dispose of an issue of bonds outright “at wholesale” does not buy the services of marketing agents does not make it improper to record the cost of such services in cases where they are actually incurred. Variations in costs recorded for situations which are very similar from an external point of view are an inevitable feature of accounting, and in making comparisons it is the business of the accountant to see to it that important variations are brought to light and properly interpreted.

An added comment is needed. Caution should be exercised in employing the phrase “net proceeds” in connection with a security issue. The actual proceeds consist of the full amount paid in by the original investors, and the funds so received are available for all proper corporate purposes. The payment for services rendered by investment bankers, like any other commitment, represents one *application* of the funds received, not a *reduction* in the amount of such funds.

**Bonds Issued at Premium.** The foregoing discussion of discount can be readily adapted to cases where bonds are issued at a premium—at a price, that is, in excess of par or maturity value. The true liability at date of issue is again the amount paid by the bond buyer, the investor. Assuming that the convention of displaying face value in the principal liability account is adhered to the amount of the premium must be recorded in a supplementary account, as shown by the following illustrative entries:

Cash . . . . .	\$1,050,000	
First Mortgage 5% Bonds Outstanding—Par . . . . .		\$1,000,000
First Mortgage 5% Bonds Outstanding—Premium . . . . .		50,000

In the balance sheet this special account should be reported as a part of the total liability, thus:

First Mortgage 5% Bonds:	
Amount due at maturity . . . . .	\$1,000,000
Unamortized premium . . . . .	50,000
Total amount of liability . . . . .	<u>\$1,050,000</u>

The premium account represents that part of the original liability which is returned to the investor in the guise of periodic "interest" payments, and the discharge of this portion of the obligation is recognized by debiting the account each period with the excess of the nominal interest over the interest calculated at the yield rate. At date of maturity the amortization of premium has been completed and the liability stands at the amount then due, the face value. See later discussion of premium amortization.

In practice the error is sometimes made of absorbing bond premium at the outset in income or surplus account. This is definitely objectionable. Issuing bonds at a premium certainly does not give rise to a profit. The investor pays the premium with his eyes open and is in no sense making a donation to the issuing corporation; he expects to be repaid in full during the life of the security. Crediting premium to surplus on the corporation's books results in an understatement of liabilities and overstatement of stockholders' equity, followed by a periodic understatement of net profit due to the inclusion in interest charges of premium amortization.

The treatment of bond premium as a deferred revenue which is gradually "earned" through the term of the bond is also inaccurate. The premium—a portion of the funds contributed by the bondholder—is not an income to the borrowing company at any stage. It is true that charging interest with the full amount of the periodic payment and including in income the amount of premium amortized does not distort the final net figure, but it does involve padding of both sides of the income report and hence is improper. The sound procedure is to charge the amount of "interest" representing amortization directly to the premium account as a clear-cut reduction of the total liability.

The premium account, like the account with bond discount, need not be assigned to the accounts of the individual registered bondholders. Separation of the main liability account into two sections, one for registered bonds and one for coupon bonds, is again desirable as a means of facilitating control of the bond ledger. Corresponding division of the supplementary premium account is not required, however, as it is not considered necessary to distinguish between coupon and registered bonds in the financial statements.

**Issuing Bonds between Interest Dates.** The M Co., for example, issues first mortgage, 6% bonds in the amount of \$1,000,000, par, as of January 1, and sells the issue at a price of par and accrued interest on January 15. The entries summarizing the transaction are:

Cash . . . . .	\$1,002,500	
First Mortgage 6% Bonds Outstanding . . . . .		\$1,000,000
Bond Interest Accrued Payable . . . . .		2,500

In this situation the investor advances to the corporation the interest accrued from formal date of issue to date of sale, \$2,500. This amount, however, must be returned to the bondholder on the first interest date as a part of the total due at that time, and hence is credited to an accrued liability account. On July 1, when the first coupon is paid (and assuming there has been no interim accrual), the entries are:

Bond Interest Charges . . . . .	\$27,500	
Bond Interest Accrued Payable . . . . .	2,500	
Bank Account . . . . .		\$30,000

Bonds are often sold in a number of blocks over a period of months and where this is the case interest must be appropriately accrued and collected for each lot. Where a sale is made after one or more interest dates the matured coupon (or coupons) is detached and the interest collected from the buyer is that accruing since the last interest date. Original charges to bond subscription accounts do not ordinarily include any element of accrued interest but under the usual arrangement the subscriber must advance the amount accrued, if any, when making payment.

Cases in which bonds are issued at a discount or premium between interest dates are considered later.

**Interest Procedure.** Interest on outstanding bonds, like interest on short-term obligations, must be properly accrued for each accounting period of the issuing corporation, the entries being a debit to interest charges and a credit to an accrued liability account. When payment is made the liability is charged and the bank account is credited. In the case of bonds issued at a discount or premium adjustment must be made for accumulation or amortization. See illustrations later. In any event the amount actually disbursed in each period is the nominal interest as stated in the bond.

Interest may be paid either by the issuing corporation or by the trustee or other designated representative. Where payment is made directly by the corporation checks on the company's bank account (sometimes a special account, established to take care of interest requirements) are mailed to registered holders and coupons as presented are redeemed either by check or in actual currency. Individual holders often turn their coupons over to a local bank or other financial institution for purpose of collection, which means that coupons are assembled in some measure before reaching the corporation and may be taken care of by a relatively small number of separate payments. In the nature of the case complete redemption of all matured coupons cannot be expected to be accomplished on the due date; often presentation of a few coupons will be delayed for a considerable period. If desired the balance of the accrued liability account representing coupons past due for a month or

more may be transferred to a special ledger account. An important feature of interest procedure, not always carefully observed, is the systematic filing of redeemed coupons.

Where payment is made by the trustee the procedure required of the corporation is somewhat simplified. A single check is issued payable to the trustee for the entire semiannual requirement (the necessary amount may of course be accumulated through a series of payments, if desired) and the individual payments are made by the trustee to registered holders and those presenting coupons. In this situation the amount of interest money deposited with the trustee may be debited directly to the accrued liability account or it may be charged to the trustee, as a part of funds on deposit. The first treatment is somewhat objectionable in that it assumes immediate payment of the entire interest obligation, although the liability is actually retired only as interest funds are disbursed by the trustee. Under the second and preferable treatment the trustee's fund is credited and the interest liability charged only as payments of interest money are reported by the trustee, and the accounts then show at all times the unpaid interest and the deposited funds available for payment. The amount of interest money to be deposited is of course the interest currently payable as stated in the contract and is unaffected by accumulation or amortization schedules.

Coupons on bonds acquired by the issuing corporation and not formally canceled should be detached and filed as of interest dates, with notations showing their origin. If interest is disbursed by the trustee the holdings in the company treasury and the amount outstanding should be reported by the corporation. Where company bonds are held by the trustee interest payments thereon are sometimes continued as part of a program of sinking-fund accumulation. See discussion of treasury bonds and sinking-fund methods in the next chapter.

**Estimating Effective Interest Rate.** As explained in Chapter VIII the bond buyer often wishes to ascertain the yield rate of interest implicit in the market price of a particular security. For the issuing company likewise a common problem is that of estimating the effective rate where a price has been proposed or agreed upon without previous determination of the rate. In general the most satisfactory method of calculation is that of averaging coupled with "trial and error." For example, assume that the M Co. issues twenty-year, 4% bonds in the par amount of \$1,000,000.00 for \$1,149,579.22. What is the true rate of interest involved? The nominal interest paid for each half-year period, \$20,000.00, exceeds the actual interest burden, on the average, by one-fortieth of the premium of \$149,579.22, or \$3,739.48, and the average charge per period is accordingly \$16,260.52. The principal sum at the outset is \$1,149,-

579.22 and at maturity is \$1,000,000.00 and the average of these amounts is \$1,074,789.61. Dividing the average amount of interest by the average of beginning and ending principals gives an initial trial rate per half-year period of approximately 1.513%. The next step is the computation of an informal amortization schedule (see illustration later) for the bond issue for forty periods based on this trial rate—not a very difficult task where a mechanical calculator is available. By this process the trial rate will be found to be too high, and a new trial rate is selected which takes account of the average discrepancy. Through two or three such calculations the correct rate of 1.5% can be found or approximated as closely as desired.

Particular blocks of bonds of a given issue all having the same life and nominal rate are often marketed at different times and at prices which involve different effective rates. In this situation it is possible to account for each block as a separate issue, with its own yield rate and accumulation or amortization schedule. As a practical matter, however, a satisfactory procedure is to combine the discount or premium on the various blocks and estimate and use the approximate rate implicit in the total proceeds.

If bond tables are used the procedure is to find the value shown, at the proper nominal rate and number of periods, which is nearest to the actual issue price and accept the corresponding yield rate as the approximate effective rate for the case in hand. If the difference between the actual issue price and the price shown by the table is of negligible amount it may be absorbed in the first period. If the discrepancy is too large to be treated in this manner it may be divided by the number of periods and absorbed as an adjustment of the accumulation or amortization computed by applying the approximate effective rate. Still greater accuracy may be achieved by spreading the discrepancy over the various periods in proportion to the respective amounts of accumulation or amortization based upon the approximate rate. Another possibility is to adjust the rate attaching to the nearest value in the bond table by noting the relation of the difference between such value and the issue price to the spread between the two table values within which the actual price falls. For excerpts from published bond tables see Table 5 in the following chapter.

**Computing Bond Prices.** Often the principal problem for the issuing company is that of computing the offering price at one or more yield rates rather than that of estimating the rate implicit in a predetermined price. The price of a bond consists of the sum of two elements: (1) the present worth of the amount due at maturity; (2) the present worth of the interest annuity. If the yield rate at which the bond can be

marketed is the same as the nominal rate the sum of these two elements is equivalent to par or maturity value. For example, if the M Co. offers 4%, twenty-year bonds amounting to \$1,000,000, par, the present worth of the sum due in 40 periods at a rate of 2% per period is \$452,890.42 (see 2% column of Table 1, next chapter) and the present worth of an annuity of \$20,000.00 per period for 40 periods at a rate of 2% is \$547,109.58 (the fortieth value in the 2% column of Table 2 (next chapter) multiplied by 20,000), a total of exactly \$1,000,000.00. If, however, the market rate is above the nominal rate stated in the bond the sum of the values of the two elements is less than par, and if the market rate is less than the nominal rate a value in excess of par is indicated. A bid for the above bond on a 5% yield rate, for example, would amount to \$372,430.62 (see 2½% column of Table 1) plus \$502,055.50 (fortieth value in 2½% column of Table 2 multiplied by 20,000), a total of \$874,486.12. And a bid on a 3% basis would be similarly found to amount to \$1,149,579.22.

If only a table for present values of \$1.00 at compound interest is available the issue price may still be ascertained without extensive calculation. If, for example, the M Co. bonds carried a 5% rate, they would have a price of par on a 5% yield basis. But the present worth of the sum due at maturity at 5% per annum (2½% per half-year) is found from Table 1 to be \$372,430.62, which means that an interest annuity of 5%, on a 5% basis, is worth par less this amount, or \$627,569.38. The value of the actual interest annuity of 4% at a yield rate of 5% is then four-fifths of this last amount or \$502,055.50. The price of the bond offered on a 5% basis is, therefore, \$372,430.62 plus \$502,055.50, or \$874,486.12.

In Chapter VIII, in discussing the treatment of bonds from the standpoint of the investor's books, a method of computing the discount or premium on a given bond at a particular yield rate through the use of the formula for the present value of an annuity was explained. Applying this method to the M Co. 4% bonds to find the price on a 5% basis, and referring to the 2½% column of Table 2 for the necessary annuity value, the discount is found to be 25,000-20,000(25.10277505), or \$125,513.88, and the required price is therefore \$874,486.12. The premium on a 3% basis is similarly found to be 20,000-15,000(29.91584520) or \$149,579.22, which means that the price on this basis is \$1,149,579.22.

The total price of a serial bond issue under given conditions may be readily determined by similar methods. The M Co., for example, issues 4% debentures amounting to \$500,000.00, par, payable in the amount of \$100,000.00 each year after date of issue. On a 5% yield basis the price of the entire issue is found as follows:



<i>Term</i>	<i>Par Amount</i>	<i>Discount</i>	<i>Price</i>
One Year	\$100,000.00	\$ 963.71	\$ 99,036.29
Two Years	100,000.00	1,880.99	98,119.01
Three Years	100,000.00	2,754.06	97,245.94
Four Years	100,000.00	3,585.07	96,414.93
Five Years	100,000.00	4,376.03	95,623.97
	<u>\$500,000.00</u>	<u>\$13,559.86</u>	<u>\$486,440.14</u>

The discount on the block with the first maturity is 2,500-2,000(1.-92742415), or \$963.71, and the other amounts are similarly determined. (See Table 2, 2½% column, figures for 2, 4, 6, 8, and 10 periods.) If the yield rate required were different for each block the computation would be no more difficult, assuming that present values for all the rates involved were available. Neither would irregular maturities alter the method of calculating prices employed.

The price of a proposed issue at a given yield rate can be taken directly from published tables of bond values, provided the conditions are covered by the tables. For example, the value of the M Co. twenty-year, 4% bonds, on a 5% basis, is found in the 4% column of Table 5, on the 5% line.

**Accumulation and Amortization Procedure.** The straight-line plan of accumulating discount or amortizing premium has the support of the Internal Revenue Code and has been widely commended on the score of simplicity. The interest method is much more acceptable, however, particularly for the issuing corporation. The individual investor, usually holding only a small portion of an issue and often for a much shorter period than the life of the security, may not always find it expedient or wise to use a scheme of revaluation in terms of an effective rate applicable from date of purchase to maturity. The corporation, on the other hand, is faced with the problem of accounting for the entire issue through the full contractual life (ignoring possibility of redemption by call or purchase on the market) and should accordingly adopt the policy which will register the effect of the entire transaction in the periodic reports in the most reasonable manner. Straight-line absorption of discount or premium results in equal periodic charges to income on account of interest, despite the increasing equity of the bondholder in the case of a discounted security and the decreasing equity where the security was issued at a premium. Under the interest method the interest charge each period is in harmony with the amount of the effective liability for the period—a condition clearly desirable. This point is especially important where the amount of discount or premium is relatively large; where the amount is small the distortion resulting from straight-line procedure is not very serious.

Irregular absorption of discount or premium, such as is permitted under the accounting rules of the Interstate Commerce Commission, is unsatisfactory. Failure to accumulate or to amortize until date of maturity is still more objectionable. If discount is not accumulated until date of payment this means that there has been no recognition of the increase in the bond liability from issue price to maturity value—that profits have been overstated because of failure to include accruing discount in interest charges. It then becomes necessary to accrue the entire amount of discount at one stroke by a charge to income or surplus, and if income and surplus are not available in sufficient amount the result is a deficit. Similarly, if premium has not been amortized this means that there has been no recognition of the decreasing liability from issue price to maturity value—that profits have been understated throughout the life of the business by failure to exclude from interest charges the amortization of premium. It then becomes necessary to credit the entire amount of premium to income or surplus in one figure as a belated correction of the proprietary equity.

**Accumulation of Discount—Illustrative Entries.** On January 1, 1941, the M Co. offers ten-year, 4% debenture bonds in the par amount of \$1,000,000.00. These bonds are immediately sold for \$922,054.19, a price which gives a yield rate of 5%, computed semiannually. The interest dates are July 1 and January 1. With these conditions the entries for 1941, assuming closing dates of June 30 and December 31, are as follows:

January 1		
Cash . . . . .	\$922,054.19	
Debenture Bonds Outstanding—Discount . . . . .	77,945.81	
Debenture Bonds Outstanding—Maturity Value . . . . .		\$1,000,000.00
To record issue of bonds		
June 30		
Bond Interest Charges . . . . .	23,051.35	
Bond Interest Accrued Payable . . . . .		20,000.00
Debenture Bonds Outstanding—Discount . . . . .		3,051.35
To charge income with interest accruing for six months at effective rate on initial liability and recognize amount currently payable and discount accumulation		
July 1		
Bond Interest Accrued Payable . . . . .	20,000.00	
Bank Account . . . . .		20,000.00
To record payment of nominal interest		
December 31		
Bond Interest Charges . . . . .	23,127.64	
Bond Interest Accrued Payable . . . . .		20,000.00
Debenture Bonds Outstanding—Discount . . . . .		3,127.64
To charge income with interest accruing for six months at effective rate on accumulated liability and recognize amount currently payable and discount accumulation		

The interest charge in each period is determined by applying the effective rate per half-year,  $2\frac{1}{2}\%$ , to the net book value of the liability. To begin with this liability is the amount received for the bonds, \$922,054.19, and the interest charge is \$23,051.35; for the second period the liability is increased by the accumulation of \$3,051.35 to \$925,105.55, and the interest charge is \$23,127.64. The figures for subsequent periods would be similarly determined. It is noticeable that with an increasing bondholders' equity and a constant periodic payment the amount of accumulation—implicit interest withheld by the corporation—is successively greater. Continuing the process to maturity results in systematic accumulation of the entire discount.

The accrual of interest currently payable and the accumulation of discount can be recorded through separate journal vouchers if this is more convenient. For example, the following may be substituted for the entries on June 30 given above:

(1)			
Bond Interest Charges . . . . .		\$20,000.00	
Bond Interest Accrued Payable . . . . .			\$20,000.00
(2)			
Bond Interest Charges . . . . .		3,051.35	
Debenture Bonds Outstanding—Discount . . . . .			3,051.35

**Amortization of Premium—Illustrative Entries.** Assume that the M Co. ten-year debenture bonds, in the par amount of \$1,000,000.00 and carrying a coupon rate of 5%, are issued on January 1, 1941, at a price of \$1,081,757.17, to yield 4%. Other conditions are as given in the preceding example. The entries through the first year are:

January 31			
Cash . . . . .		\$1,081,757.17	
Debenture Bonds Outstanding—Maturity Value . . . . .			\$1,000,000.00
Debenture Bonds Outstanding—Premium . . . . .			81,757.17
To record issue			
June 30			
Bond Interest Charges . . . . .	21,635.14		
Debenture Bonds Outstanding—Premium . . . . .	3,364.86		
Bond Interest and Premium Accrued Payable . . . . .			25,000.00
To charge income with interest accruing for six months at effective rate on initial liability and recognize amount currently payable including premium amortization			
July 1			
Bond Interest and Premium Accrued Payable Bank Account . . . . .	25,000.00		25,000.00
To record payment of interest and accrued premium			

	December 31	
Bond Interest Charges . . . . .	21,567.85	
Debenture Bonds Outstanding—Premium . . . . .	3,432.15	
Bond Interest and Premium Accrued Payable . . . . .		25,000.00
To charge income with interest accruing for six months at effective rate on amortized liability and recognize amount currently payable including amortization		

Again the interest charge each period is found by applying the effective rate per half-year, 2% in this case, to the book value of the total liability. Here, however, the liability is being successively reduced by the amount of amortization of premium. With a decreasing interest charge and a constant interest payment the periodic amortization is evidently an increasing series.

In the case of serial bonds issued at different effective rates the amortization (or accumulation) should be separately calculated for each block.

**Bonds Issued between Interest Dates—Discount Cases.** The M Co., for example, offers a block of 4%, ten-year debenture bonds, in the par amount of \$1,000,000.00, at a price of 92.205419, which gives an effective or yield rate of 5%. The bonds are dated January 1, 1941, and are sold at the close of business on January 31 at the stated price and accrued interest, including the accumulation of discount from January 1 to date of sale. With these conditions the proceeds amount to \$925,896.08, made up as follows:

Base price, January 1 . . . . .	\$922,054.19
Nominal interest for one month . . . . .	3,333.33
Accumulation of discount for one month . . . . .	508.56
	<u>\$925,896.08</u>

The “nominal interest” for one month is one-sixth of the amount payable on July 1, and the accumulation of discount is one-sixth of the difference between the total interest accrued on the base price for six months at 2.5% (half the annual yield rate), \$23,051.35, and the nominal interest of \$20,000.00 payable on July 1. The entries on the M Co.’s books on January 31 are:

Cash . . . . .	\$925,896.08
Debenture Bonds Outstanding—Discount . . . . .	77,437.25
Debenture Bonds Outstanding—Maturity Value . . . . .	\$1,000,000.00
Bond Interest Accrued Payable . . . . .	3,333.33

Assuming that the M Co. closes its books on June 30 the entries required on that date are:

Bond Interest Charges . . . . .	\$19,209.46	
Bond Interest Accrued Payable . . . . .		\$16,666.67
Debenture Bonds Outstanding—Discount . . . . .		2,542.79

On July 1, when the first interest is paid, the entries are:

Bond Interest Accrued Payable . . . . .	\$20,000.00	
Bank Account . . . . .		\$20,000.00

In this treatment January is considered to be an average month and the interest due July 1 is considered to be fully accrued on June 30.

It is noticeable that under the above procedure no interest is accrued on the accrued interest advanced by the buyer. This is a minor imperfection from the standpoint of ideal compounding.

Bonds are often priced for a considerable time at a stated figure plus "accrued interest" at the nominal rate specified in the contract. If this pricing is applied to the foregoing example the sale of the bonds on January 31 will yield only \$925,387.52, an amount which is \$508.56 less than the more equitable price used above. If market conditions have not changed since January 1 such pricing amounts to the granting of an additional discount to the bond buyer. That is, the Company is making no charge for the discount accumulated during January and is therefore issuing the bond at a somewhat higher yield rate than that implicit in the January price. In such circumstances the ideal procedure would be to estimate a new effective rate, one which would permit accumulating the total discount in nine years and eleven months. However, if it is desired to use the rate of 5% determined on January 1 in preparing the accumulation schedule the additional item of discount may be separately absorbed by the straight-line method. The use of this compromise procedure is illustrated by the following entries:

January 31

Cash . . . . .	\$925,387.52	
Debenture Bonds Outstanding—Discount . . . . .	77,945.81	
Debenture Bonds Outstanding—Maturity Value . . . . .		\$1,000,000.00
Bond Interest Accrued Payable . . . . .		3,333.33
To record issue of bonds at January 1 price, based on effective annual rate of 5%, and accrued nominal interest for one month		

June 30

Bond Interest Charges . . . . .	19,230.83	
Bond Interest Accrued Payable . . . . .		16,666.67
Debenture Bonds Outstanding—Discount . . . . .		2,564.16
To accrue interest charges for five months, including regular accumulation of discount based on January 1 price of \$2,542.79 and 5/119 of additional discount granted on January 31		

The fraction used in determining the amount of additional discount absorbed on June 30 is found by comparing the period since January, in

months, with the number of months from issue date to date of maturity.

For the next six months the total discount accumulation would be the accumulation for the second half-year based on the January 1 price plus 6/119 of the additional discount of \$508.56.

**Bonds Issued between Interest Dates—Premium Cases.** The M Co., for example, offers a block of 5%, ten-year debentures in the par amount of \$1,000,000.00 at a price of 108.175717, which gives an effective rate of 4%. The bonds are dated and priced as of January 1, 1941, and are sold on January 31 at the equitable price, determined as follows:

Base price, January 1 . . . . .	\$1,081,757.17
Amortization of premium for one month . . . . .	560.81
	<u>\$1,081,196.36</u>
Nominal interest for one month. . . . .	4,166.67
	<u>\$1,085,363.03</u>

The "nominal interest" for one month is one-sixth of \$25,000.00, the amount payable on July 1, and the amortization for one month is one-sixth of the difference between the total interest accrued on the base price for six months at 2% (half the annual effective rate), \$21,635.14, and the nominal interest for six months. The entries are:

January 31		
Cash . . . . .	\$1,085,363.03	
Debenture Bonds Outstanding—Maturity Value . . . . .		\$1,000,000.00
Debenture Bonds Outstanding—Premium . . . . .		81,196.36
Bond Interest and Premium Accrued Payable . . . . .		4,166.67
June 30		
Interest Charges . . . . .	18,029.28	
Debenture Bonds Outstanding—Premium . . . . .	2,804.05	
Bond Interest and Premium Accrued Payable . . . . .		20,833.33
July 1		
Bond Interest and Premium Accrued Payable . . . . .	25,000.00	
Bank Account. . . . .		25,000.00

It should be noted again that when bonds are issued at a premium a part of the amount invested is regularly returned in the form of "interest" payments. That is, the "interest" payments include the amortization of premium. Hence the use of the combined title, "Bond Interest and Premium Accrued Payable."

If these bonds were priced on the January 1 basis plus accrued "interest" with no adjustment for premium amortization this would mean that the investor was being charged an additional premium of \$560.81, that the yield rate was being reduced. In this event it would be necessary either to calculate and apply a new effective rate or to work out

entries by the compromise method illustrated in the discussion of discount cases above.

**Accumulation and Amortization Schedules.** In the case of bonds issued at a discount a complete accumulation schedule should be prepared at an early date, to serve as a source of the periodic entries. The following is a section of such a schedule:

#### ACCUMULATION SCHEDULE

M Co. Debenture Bonds

Par Amount \$1,000,000.00 Bond Date Jan. 1, 1941 Maturity Date Jan. 1, 1951 Coupon Rate 4% Interest Dates July 1 and Jan. 1 Issue Date Jan. 1, 1941 Proceeds \$922,054.19 Effective Rate 5% Closing Dates June 30 and Dec. 31.

<i>Period Ending</i>	<i>Net Liability</i>	<i>Interest Charged 2½% of Net Liability</i>	<i>Interest Paid 2% of Par</i>	<i>Accumulation for Period</i>	<i>Total Accumula- tion</i>
6/30/41	\$922,054.19	\$23,051.35	\$20,000.00	\$3,051.35	\$ 3,051.35
12/31/41	925,105.54	23,127.64	20,000.00	3,127.64	6,178.99
6/30/42	928,233.18	23,205.83	20,000.00	3,205.83	9,384.82
12/31/42	931,439.01	23,285.98	20,000.00	3,285.98	12,670.80
6/30/43	934,724.99	23,368.12	20,000.00	3,368.12	16,038.92
12/31/43	938,093.11	23,452.33	20,000.00	3,452.33	19,491.25

If date of issue does not coincide with the bond date or an interest date the schedule would be constructed as shown except for the first period. For example, if the bonds are issued on January 31 at a price which includes accumulation of discount for one month of \$508.56 and nominal interest for one month of \$3,333.33 the amount of the first liability (exclusive of the nominal interest advanced by the investor) is \$922,562.75. The interest charge for the first period is then five-sixths of the total shown in the above schedule, or \$19,209.46; the amount of interest paid (exclusive of amount advanced by investor) is \$16,666.67; and the accumulation of discount is \$2,542.79 instead of \$3,051.35. If desired the amount of interest advanced by the investor on January 1 may be shown in the accumulation schedule, preferably on a separate line.

Where accounting periods and interest periods do not correspond, as is usually the case, the proper entries can be readily determined by apportioning the amount of accumulation calculated in terms of interest periods. For example, if the M Co.'s closing dates are March 31 and September 30, other conditions remaining as in the example shown by the schedule, the interest charge and accumulation to be included in the period ending March 31, 1941, will be half of the respective figures appearing in the table. The interest charge and accumulation to be rec-

ognized in the period ending September 30, 1941, will then be the balances of the items on the first line of the schedule plus half of the corresponding items on the second line. In this type of situation it may be advisable to modify the original schedule so that the figures needed for periodic entries will be directly disclosed.

Following is a section of an amortization schedule:

### AMORTIZATION SCHEDULE

M Co. Debenture Bonds

Par Amount \$1,000,000.00 Bond Date Jan. 1, 1941 Maturity Date Jan. 1, 1951 Coupon Rate 5% Interest Dates July 1 and Jan. 1 Issue Date Jan. 1, 1941 Proceeds \$1,081,757.17 Effective Rate 4% Closing Dates June 30 and Dec. 31.

<i>Period Ending</i>	<i>Net Liability</i>	<i>Interest Charged 2% of Net Liability</i>	<i>Interest Paid 2½% of Par</i>	<i>Accumulation for Period</i>	<i>Total Accumulation</i>
6/30/41	\$1,081,757.17	\$21,635.14	\$25,000.00	\$3,364.86	\$ 3,364.86
12/31/41	1,078,392.31	21,567.85	25,000.00	3,432.15	6,797.01
6/30/42	1,074,960.16	21,499.20	25,000.00	3,500.80	10,297.81
12/31/42	1,071,459.36	21,429.19	25,000.00	3,570.81	13,868.62
6/30/43	1,067,888.55	21,357.77	25,000.00	3,642.23	17,510.85
12/31/43	1,064,246.32	21,284.93	25,000.00	3,715.07	21,225.92

The amortization schedule, like the tabulation of discount, may be readily adapted to meet the complications arising where bonds are issued between interest dates and where interest dates and closing dates do not correspond.

**Bonds without Interest Annuity.** Long-term obligations with no explicit interest provided are seldom if ever employed by business corporations as a means of raising funds, but consideration of the accounting required for such an obligation on the borrower's books is helpful in emphasizing the essential elements of the ordinary bond contract. A security which does not provide an interest annuity is worth simply the present value of the sum due at maturity, and the interest realized by the investor and paid by the issuer is all in the form of discount—the excess of maturity value over the amount received. In this situation the absurdity of contending that the actual liability is face or maturity value throughout the life of the contract is apparent and the necessity for accumulating the discount systematically by means of charges to earnings is equally evident. As in the case of interest-bearing bonds the initial liability is the amount received, and the difference between this amount and the sum due at maturity accrues during the life of the security.

The United States government is issuing "Savings Bonds" with no interest annuity attached and these may be used for illustrative purposes.



These bonds are offered in maturity denominations ranging from \$25 to \$1,000 and are payable in ten years. The issue price in each case is three-quarters of the maturity value. Thus the price of the \$1,000 denomination is \$750 and the interest paid by the government in a lump sum when the bond matures is \$250. This gives a rate, according to the official circular, of 2.9%, compounded semiannually, assuming the bond is held to maturity. The appropriate entries on the government's books at date of issue, accepting the tradition of recording maturity value, are as follows:

Cash . . . . .	\$750	
Savings Bonds—Discount . . . . .	250	
Savings Bonds—Maturity Value . . . . .		\$1,000

Six months later, assuming this to be a closing date for the issuer, the proper entries are:

Interest on Savings Bonds . . . . .	\$10.87	
Savings Bonds—Discount . . . . .		\$10.87

These entries charge earnings (perhaps a peculiar term for government enterprise) with 1.45% of the amount received and recognize the accrued increase in the liability. After another six months the following entries are in order:

Interest on Savings Bonds . . . . .	\$11.03	
Savings Bonds—Discount . . . . .		\$11.03

These entries charge earnings with 1.45% of the accumulated investment at the beginning of the period, \$760.87, and record the second accumulation.

### QUESTIONS

1. What are the principal forms of long-term corporate liabilities? In what fields are such obligations typically a prominent element in the capital structure?
2. Outline the principal steps in issuing bonds. Give illustrative entries.
3. Illustrate the recording of bonds issued at a discount.
4. How should bond discount be interpreted on the issuer's books? Outline the argument against treating such discount as an asset. As a loss.
5. "Par value is the proper expression of the true liability for accounting purposes throughout the life of the bond." Discuss.
6. "Discount is 'unpaid' interest rather than 'prepaid' interest." Explain.
7. Contrast bond "expense" and bond discount. Show how the form of the arrangement under which bonds are issued may make it difficult to draw the distinction.
8. Illustrate the fact that the total of recognizable "assets" arising from a bond issue may vary with the method of distributing the bonds.
9. How should bond premium be interpreted and handled on the issuer's books? Give illustrative entries.
10. "Bond premium is a type of deferred income and should be reported as such

in the balance sheet. With the passage of time the premium is earned and should be transferred to income account." Discuss.

11. How should amount received covering accrued interest to date of issue be recorded by the corporation?

12. Outline the process of paying bond interest (1) where payment is made directly by the corporation and (2) where payment is effected through a trustee. How should unclaimed interest on coupon bonds be handled?

13. Outline a method of estimating effective interest rate.

14. "The price of a bond is the sum of two distinct elements." Explain. How would you proceed to find the value of a particular bond at a given yield rate if a table of values for the expression  $(1 + i)^n$  were available?

15. With entries and explanations indicate the effect of writing off discount or absorbing premium in full (1) at date of issue and (2) at date of maturity. Explain the weakness of straight-line accumulation and amortization.

16. With entries illustrate the interest method of accumulating discount and amortizing premium. Why does the periodic amount of accumulation or amortization increase throughout the term of the security?

17. With illustrative entries outline the accounting for bonds issued at a discount between interest dates. Do the same for bonds issued at a premium.

18. Explain the nature and use of accumulation and amortization schedules.

19. "The non-interest-bearing security, so-called, actually is interest bearing." Explain. With entries illustrate the proper accounting for such a security on the books of the issuer (1) at issue date and (2) at ends of first two accounting periods thereafter.

## XXVIII

### FIXED LIABILITIES—Continued

**Conversion of Bonds.** Special questions arise in connection with the accounting for bonds which are convertible into common or preferred stock under specified conditions. In the first place, when such a bond is issued at a price other than par should a schedule of accumulation or amortization which assumes the bond will remain outstanding until maturity be adhered to, without regard to the possibility of conversion? In general an affirmative answer is justified. Conversion is at the option of the bondholder (once the conditions have been fixed), and may never take place. Even where the value of the stock reaches a level substantially above the book value of the bond, conversion may be postponed indefinitely. The original program of accumulation or amortization should therefore be followed until the security is actually retired by conversion or payment.

If the bondholders exercise their conversion privilege at what value should the capital stock issued be recorded and how should the liability account be closed? Assuming the bonds were issued at par and are converted into par-value stock, dollar for dollar, it would appear at first sight that the transaction should be recorded by charging the liability account and crediting capital stock with the face amount of bonds converted. This treatment, however, is not beyond criticism. From the standpoint of the issuer conversion is tantamount to payment of the liability, and the problem arises of finding the retirement price implicit in the transaction. The most significant measure of such price is the actual money value of the stock. If conditions are such that the stock can be directly issued for cash at par, exchange of the stock for outstanding bonds amounts to payment of the bonds at par. If, however, the established price of the stock in cash is more or less than par the cost of retirement is correspondingly modified. A block of convertible bonds amounting to \$100,000, for example, is issued at par. Later, upon presentation for conversion, the bonds are retired and stock with a par value of \$100,000 is issued in exchange. The unquestioned cash market value of this stock is \$125,000. Under these circumstances the conversion may reasonably be viewed as a telescoping of two transactions: (1)

the issue of the stock for \$125,000 in cash; (2) the use of the funds received to retire the bonds. It follows that the entries necessary to show the essential character of the conversion are:

Convertible Bonds Outstanding . . . . .	\$100,000	
Loss on Bond Conversion . . . . .	25,000	
Capital Stock—Par . . . . .		\$100,000
Capital Stock—Premium . . . . .		25,000

The "loss on conversion" should not be construed as an operating loss, and it also differs from the ordinary nonoperating loss. The conversion privilege was voluntarily offered by the corporation, as a special means of encouraging the bondholders to participate in the undertaking. Once the value of the stock has passed the conversion point (to the issuing company the book value of the bonds) the stock equity is subject to the potential participation therein inherent in the right of conversion. In a sense, therefore, the stockholders suffer no actual loss when conversion occurs. The booking of the amount of the implied adjustment in favor of the bondholders, moreover, does not alter the total recorded stock equity; it rather represents the transfer from surplus to capital (assuming that the company has a surplus) of the amount of such adjustment.

It is important to note that the book equity of the bondholders in the form of stock issued in exchange for bonds is not likely to equal precisely the amount of the market value of the stock, even if the conversion is recorded as shown above. Assume, to continue the example, that the total par value of stock outstanding, after the conversion, is \$1,000,000 and that the balance of recorded earned surplus (after absorption of the "loss") amounts to \$175,000. The total stock interest under these conditions is \$1,200,000 (par, \$1,000,000, plus premium of \$25,000, plus surplus balance) and the book equity of those who were bondholders is 10% or \$120,000. If there were an earned surplus balance of \$275,000 after conversion, other conditions remaining the same, the total book value of the stock would stand at \$1,300,000 and the equity of the former bondholders would amount to \$130,000. This raises again the question of whether market value or book value should be used in determining implicit issue price in the case of exchanges and related transactions. In general it seems clear that the amount of cash for which stock can be issued is a more satisfactory evidence of true issue price than the book value per share immediately preceding date of issue. (See discussion of this question in Chapter XXIV.)

Where bonds are converted into any form of preference stock the propriety of the method of treatment just outlined is more apparent, as in this situation the question of separating clearly the contributions and equities of two or more classes of stockholders is involved. Where bonds

are converted into no-par stock, it may be added, the pattern of entries on the company's books is altered only with respect to the particular titles used in recording the value of the stock issued.

Conversion of bonds appearing on the issuer's books at either more or less than par at date of conversion may be handled similarly. The liability accounts (including discount or premium) are closed (to the extent of the conversion), capital stock is recorded at implied issue value, and the difference represents an adjustment of current or accumulated surplus.

**Redemption of Bonds.** If bonds are redeemed by the issuing corporation at a price in excess of recorded value a book loss of the difference is suffered, and if the call price is less than such value a book profit results. The M Co., for example, calls and retires at a price of 103 outstanding bonds with a par value of \$1,000,000 and a net book value of \$990,000. The summarized entries are:

Bonds Outstanding—Par . . . . .	\$1,000,000	
Loss on Bond Retirement . . . . .	40,000	
Bank Account . . . . .		\$1,030,000
Bonds Outstanding—Discount. . . . .		10,000

The "loss" in this situation arises from a voluntary equity adjustment and should be reported as a financial charge against net earnings or surplus. The loss is of course increased by any costs incurred in carrying out the transaction, and by the amount of any unamortized bond issue cost attaching to the bonds redeemed.

The issuing corporation can hardly expect to redeem an entire issue at satisfactory prices by purchases on the open market, but substantial blocks are often retired on a favorable basis in this manner. Assume, for example, that a company buys its outstanding bonds in the par amount of \$100,000, and with a book value of the same figure, at an average price of 90. The condensed entries are:

Bonds Outstanding . . . . .	\$100,000	
Bank Account . . . . .		\$90,000
Profit on Bond Retirement . . . . .		10,000

This book profit, like the loss arising in similar circumstances, should be reported as a nonoperating item, or as a direct addition to surplus. As in the case of stock retirements the difference between book value and retirement price may be viewed basically as reflecting a revaluation of the enterprise and its resources in their entirety. (See Chapter XXIV.)

The bond contract usually provides that the issuer pay accrued interest as well as the stated call price or that the bonds are callable only on interest dates. In buying outstanding bonds on the market, likewise, the purchaser commonly pays accrued interest, if any, as well as the stated price.

If a corporation made definite plans at the outset to redeem its bonds at the call price at a particular date prior to maturity, such price would in effect become the maturity value and the call date selected the date of payment. In this situation the original book value should be systematically accumulated (or amortized) to the expected redemption price. Such conditions, however, are not at all typical. Definite decision to exercise the right of redemption is seldom if ever made long in advance of actual call, and explicit recognition of the redemption price in the corporate accounting is therefore not feasible. The uncertainty is sometimes magnified by variation in specified call prices as of different dates.

Occasionally bonds are redeemable at stated values at the option of the holder, and where this is true the issuer must stand ready to make payment at such values. The U. S. Savings Bonds referred to in the last chapter, for example, can be cashed by the holder at any time after sixty days from issue date at specified prices. In this case, however, the accumulated value based upon the effective rate for the entire life exceeds redemption value at all dates prior to maturity, which means that a margin of profit (subject to any special costs involved) is realized by the issuer whenever bonds are redeemed.

The prevailing opinion in the field of income taxation views loss or gain arising through the retirement of a genuine liability as an allowable deduction or a taxable gain, as the case may be, in the period of redemption.

See discussion of refunding operations later in this chapter.

**Treasury Bonds.** Where bonds acquired by the issuer are kept "alive" in the treasury, with the expectation of subsequent reissue, the error has sometimes been made of reporting the holding as an asset. Such treatment is inexcusable. Treasury bonds and notes, like treasury stock, are never a true asset, regardless of the method of acquiring, length of time held, or manner of disposition. The acquisition by the borrower of his own promises to pay constitutes an effective reduction of outstanding liabilities, and this essential fact cannot be altered by formal details such as lack of cancellation and intention to reissue. When a short-term bank loan is repaid it never occurs to the borrower to view the returned note as an actual resource, even if it is intended to borrow again shortly from the same source and on the same terms, and there is no basis whatever for adoption of a different attitude in the case of long-term debts. Certainly the fact that a coupon bond in the treasury may be reissued in identical form is not adequate excuse for accounting for such a bond as an asset. There is no essential difference between an authorized bond which has never been issued, but has been printed and is in the treasury available for issue, and a similar bond which was once outstanding and

has been acquired by call or in some other manner. The absurdity of the view that the corporation's own securities held in the treasury are assets becomes apparent when it is remembered that such "property" is conceded to be eliminated by the bare formality of cancellation. No doubt the error arises in part from overemphasizing the terms "sale" and "purchase" as applied to issue and acquisition of corporate obligations, and consequent failure to recognize the impropriety of viewing the single corporation as two entities, one of which is capable of investing in the securities of the other. "Sale" of bonds by the company is more accurately described as the issuing of evidence of indebtedness to parties contributing funds to the enterprise, and subsequent "purchase" of bonds is in essence the payment or retirement of outstanding liabilities.

It is good practice to avoid the use of a treasury bonds account altogether by analyzing the terms of each acquisition immediately and making entries as indicated in the discussion of the redemption of bonds above. If, however, a temporary clearing account is charged with the cost of bonds acquired, such account should be closed, or at least broken down into its principal elements, at the end of the accounting period. If the cost of the bonds exceeds their net book value at date of acquisition the amount of the excess should be treated as a net income or surplus adjustment and the balance should be reported as a contra to the liability account. Assume, for example, that a block of bonds issued at par, \$10,000, is acquired at a cost of \$10,500, and that this amount is charged to treasury bonds. At the end of the period the loss of \$500 should be closed to income or surplus. The bonds outstanding should then be reported in the balance sheet by showing the net amount outstanding only, or the gross amount with the par of bonds held in the treasury treated as a contra. If, to alter the example, the bonds had been issued at a discount and the accumulated net book value at date of purchase is \$9,800, the loss to be charged off is \$700 and the treasury bonds account should be dealt with as indicated by the following:

Bonds—Par Value of Issue	.	.	.	.	.	.	.	.	.	.	.	\$100,000
Unaccumulated Discount	.	.	.	.	.	.	.	.	.	.	.	2,000
Net Book Value	.	.	.	.	.	.	.	.	.	.	.	\$ 98,000
Par Value of Treasury Bonds	.	.	.	.	.	.	.	.	.	.	.	\$10,000
Unaccumulated Discount.	.	.	.	.	.	.	.	.	.	.	.	200
												9,800
Net Book Value of Outstanding Bonds.	.	.	.	.	.	.	.	.	.	.	.	\$ 88,200

Likewise if the bonds had been issued at a premium and were called or purchased at a price in excess of amortized value the treasury bonds account should be restricted to a proportionate part of the total book value of the entire issue.

Where bonds are purchased at a price of less than book value, and it is desired to use a treasury bonds account, a proper accounting requires the charging of treasury bonds with the amount of book profit together with cost so that the contra account may be in harmony with the recorded book value of the gross liability. For example, if bonds issued at a premium and having an amortized value to date of \$10,200 are purchased at a cost of \$9,500 the appropriate entries are:

Treasury Bonds.	\$10,200	
Bank Account		\$9,500
Profit on Bond Retirement		700

Purchases at a profit of bonds with a book value of par or less than par would be similarly recorded. In all cases the balance of the treasury bonds account should be reported as a contra, as explained above.

To maintain a treasury bonds account in continuous agreement with the related book value requires periodic adjustment of unaccumulated discount or unamortized premium assignable to such bonds. For example, if the purchase of treasury bonds for \$9,800 (see above illustration) occurs at an interest date, and the effective interest for the next six months on the bonds actually outstanding includes a discount accumulation of \$180, it would be necessary to charge treasury bonds and credit bond discount with the amount of \$20, to maintain the three elements of the liability record in proper relationship.

Where treasury bonds which are recorded in a special account are re-issued the best procedure is to close the contra account against the main liability account or accounts and to treat the sale as an original issue. For example, if the block of bonds acquired for \$9,800 is purchased on an interest date and six months later, after the contra account has been accumulated to \$9,820, is "sold" for \$10,050, the following entries are appropriate:

(1)		
Bonds—Par	\$10,000	
Bonds—Discount		\$ 180
Treasury Bonds.		9,820
To close special account with treasury bonds		

(2)		
Cash	10,050	
Bonds—Par.		10,000
Bonds—Premium		50
To record sale of block of bonds held in treasury		

In the subsequent handling of this block, evidently, a special effective rate must be determined and applied to the block through its remaining life, or the premium received may be credited to the unaccumulated discount attaching to the other bonds of the same issue and a new effective rate determined for the entire amount outstanding.



It should be apparent from the foregoing that a treasury bonds account is a nuisance, even where carefully handled, and that the use of this device should therefore not be encouraged.

**Accumulation of Sinking Fund.** In its traditional form the sinking fund for bond retirement is accumulated in equal annual or semiannual installments throughout the life of the security and is employed to pay the entire amount of the liability at the maturity date. For example, the M Co. issues first mortgage, 4% bonds in the par amount of \$1,000,000.00, payable twenty years from date of issue. The agreement with the bondholders provides that on each interest date the corporation must deposit with the R Trust Co., in addition to the interest currently payable, the sum of \$18,427.10. This represents the semiannual installment, with interest at 3% compounded semiannually, which will accumulate to \$1,000,000.00 by the maturity date of the bonds. (See fortieth figure in 1½% column of Table 3.) It is assumed that the trustee has undertaken to accept the deposits on this basis. Under these conditions the entries covering the first and second sinking-fund payments, and the interest earned on the initial deposit, are as follows:

(1)		
R Trust Co.—Mortgage Bond Sinking Fund . . .	\$18,427.10	
Bank Account . . . . .		\$18,427.10
To record first deposit		
(2)		
R Trust Co.—Mortgage Bond Sinking Fund . . .	18,427.10	
Bank Account . . . . .		18,427.10
To record paying of second installment		
(3)		
R Trust Co.—Mortgage Bond Sinking Fund . . .	276.41	
Interest Earned on Sinking Fund . . . . .		276.41
To accrue interest earned on fund		

Continuing this process through the forty interest periods will result in the accumulation of the amount necessary to retire the bonds. The entries at date of maturity, assuming actual payment is made by the trustee and ignoring bond interest, are:

First Mortgage 4% Bonds Outstanding . . .	\$1,000,000.00	
R Trust Co.—Mortgage Bond Sinking Fund . . . . .		\$1,000,000.00

It is important to recognize that the interest accumulated on the fund, totaling \$262,916.00 during the twenty years (\$1,000,000.00 less forty times the semiannual installment) is bona-fide income to the depositor and must be regularly accrued as earned in accordance with the terms of the contract. It is income, however, which is immediately dedicated to a special purpose, and a periodic appropriation of surplus to indicate

this fact may be desirable. As explained in Chapter XXVI the bond contract may provide for the accumulation of the entire sinking fund out of net earnings, and in this event current or accumulated profits should be earmarked or "reserved" under a suitable title each period in an amount equivalent to the sum of the regular deposit and the interest accruing on the fund for the period. Reservations of surplus, of course, can be made only when past operations as a whole have been conducted at a profit. Making sinking fund deposits with a trustee, on the other hand, depends upon the availability of cash. It may be noted here that the provisions of the bond indenture with respect to fund requirements and procedures often lack clarity.

Where a bond issue has a single maturity date the amount which must be paid to the trustee semiannually to cover both current interest and retirement fund requirements is evidently the sum of the interest annuity and the calculated periodic deposit. Thus the M Co. (above example) must deposit with the R Trust Co. (assuming interest is distributed to the bondholders by the trustee) the amount of \$38,427.10 (current interest of \$20,000.00 plus the installment for retirement fund of \$18,427.10) every six months. Where the bonds of an issue mature in blocks at two or more dates the computation of an amount which deposited each period will take care of interest and meet all principal payments is somewhat more difficult. Assume, for example, that the 4% bonds of the M Co. are payable in the par amounts of \$200,000.00, \$200,000.00 and \$600,000.00, ten, fifteen and twenty years from date of issue, respectively, and that deposits as before will earn 3% compounded semiannually. Under one procedure the first step is to find the present value of the various blocks and interest annuities at the rate to be earned on the fund,  $1\frac{1}{2}\%$  per period of six months. Referring to the  $1\frac{1}{2}\%$  column of Table 1 the present values of the three principal amounts due in 20, 30, and 40 periods are found to be \$148,494.08, \$127,952.49, and \$330,757.39, respectively, a total of \$607,203.96. Similarly, by multiplying the semi-annual interest annuities of \$4,000.00, \$4,000.00, and \$12,000.00 by the values for annuities of \$1.00 as found in the  $1\frac{1}{2}\%$  column of Table 2 for 20, 30, and 40 periods, respectively, the present values of the interest elements are found to be \$68,674.56, \$96,063.35, and \$358,990.14, a total of \$523,728.05. Adding these results gives a total present value for the three blocks on a 3% basis, compounded semiannually, of \$1,130,932.01. The next step is the calculation of the "rent" or amount required to amortize in forty periods (the term of the issue as a whole) an annuity of such present value. Referring to Table 4 the amount necessary to amortize an annuity of \$1.00 and interest for forty periods at  $1\frac{1}{2}\%$  is found to be 3.34271 cents and multiplying this figure by 1,130,932.01

gives \$37,803.78, the semiannual deposit which will take care of all interest requirements and maturities for the entire issue.

**Objections to Fund Accumulation.** The use of a rigid plan of accumulating funds to meet maturing obligations has distinct disadvantages. For one thing such a plan ties up an increasing amount of funds at a low earning rate, which may be objectionable from the standpoint of the long-run interests of bondholders as well as stockholders. A scheme such as outlined above, moreover, ignores the fact that the amount of cash readily available for deposit in the fund is likely to vary sharply with operating and financial conditions, and that the inelastic requirement may accordingly place an unreasonable strain upon working capital in particular periods. It cannot be too strongly urged that the primary protection of the bondholder as well as the stockholder in the typical business enterprise is the ability of the concern to earn profits, and care should be taken therefore not to introduce features into the contract with bondholders and trustee which will tend to hamper the management in its efforts to operate successfully. In many cases it is no doubt better to rely upon restriction of dividends, with the corporation free to invest funds retained as it sees fit, than to require establishment of a trustee bond retirement fund. And where a sinking fund is employed it is often better to set the amount of the periodic deposit as a percentage of gross revenue or net earnings rather than as a fixed number of dollars.

**Current Utilization of Sinking Fund.** In practice the arrangement with the trustee usually permits funds deposited in excess of interest requirements to be utilized to acquire outstanding bonds by call or purchase on the open market. Where this is the situation the trustee's periodic report of the operations and status of the fund should include number of bonds acquired, their cost, and any other necessary details. To illustrate the entries on the corporation's books assume that the trustee reports the purchase of bonds amounting to \$50,000, par, at a price of 98. Assume, further, that the bonds were issued at par. The suitable entries—ignoring accrued interest—are:

Bonds Outstanding	\$50,000	
Trust Co.—Bond Sinking Fund		\$49,000
Profit on Bond Retirement		1,000

The charge for bond interest, and the amount of interest money deposited, must of course be suitably adjusted as bonds are retired. Where bonds are regularly acquired through the sinking fund by purchase or call at a price above par this evidently means a scale of deposits above the level required to amortize par value. A particular block may of course be purchased by the trustee at a premium from any money deposited for retirement purposes, including interest earned on such money,

provided the agreement grants the necessary authority. Interest-money deposits should not be applied to retirement of principal.

Under some arrangements bonds acquired by the trustee are held by him and carried like other investments as a part of the fund. How should this situation be dealt with on the corporate records? For an answer reference should be had to the discussion of treasury bonds. Bonds which have been purchased from corporate funds deposited for the purpose represent liabilities effectively discharged and should be reported accordingly. The fact that payment has been made indirectly through a corporate representative and that the bonds are included in the nominal amount of the fund does not justify any other interpretation. If desired a special contra account similar to treasury bonds may be employed but again it is good practice to adjust the main liability account directly.

Is the essential condition changed if interest is regularly "paid" on bonds held in the sinking fund? A negative answer is required. Where the periodic fund deposit has been calculated on the assumption that the entire accumulation will be invested in earning assets throughout the life of the fund, the use of the fund to acquire outstanding bonds will make necessary other payments by the corporation to offset the reduction in earning power resulting from such expenditures if the original program of accumulation is to be maintained; and including the "interest" on company bonds held by the trustee in periodic deposits of interest money may be a convenient way of contributing the required additional amounts for retirement purposes. The bonds held are nevertheless not truly outstanding and payment of interest thereon is purely a formality of fund accumulation. The charge to bond interest on the corporation's books should be restricted to interest on securities actually outstanding and the balance of the interest money should be charged directly to the sinking fund. Assume, for example, that in the case of an issue of 4% bonds amounting to \$1,000,000, originally marketed at par, the trustee holds bonds acquired through fund operations amounting to \$100,000, par, and the corporation continues to deposit interest money for the entire issue. The proper entries for the semiannual payment are:

Bond Interest Charges . . . . .	\$18,000	
Trust Co.—Bond Sinking Fund. . . . .	2,000	
Bank Account . . . . .		\$20,000

A different treatment might be supported were the trustee granted full authority to sell as well as to buy company bonds in connection with fund operations. In such a situation the bonds acquired by the trustee would—somewhat like other securities in which fund deposits were invested—be outside the control of the corporation and might be viewed as contingently if not actually outstanding.

**Sinking Fund in Balance Sheet.** Under prevailing practice the balance of the sinking fund at the end of each period as reported by the trustee is displayed on the asset side of the corporation's balance sheet, usually under a special head located between the current items and the figures for fixed properties. Ordinarily the amount is presumed to represent cash or equivalent, without regard to the particular manner in which the deposits made by the company have been invested by the trustee. As implied above the mistake is sometimes made of including in the fund balance the cost of company bonds acquired by the trustee and not yet delivered to the corporation.

Occasional support is found for the view that the entire balance of the fund, even if composed only of deposits and their accumulation, should be reported by the issuing corporation as a contra to the main liability account. No doubt such treatment has some merit in that it shows clearly the extent to which provision for debt retirement has been definitely made. There are, however, definite and serious objections to this practice. The fund balance may be entirely outside the control of the depositing corporation, irrevocably dedicated to bond retirement, but until expended the fund remains a resource and until actual payment the bonds represent a true liability. Both money funds and other types of assets are often subject to restrictions which prevent their use except in particular directions and it is generally acknowledged that such restrictions do not impair validity as property. Restriction destroys neither ownership nor earning power (although it may be a limiting factor). Moreover, cancellation of related assets and liabilities in the balance sheet is simply a step in the direction of reducing the report to a showing merely of residual property and proprietary equity. That bonds not yet paid are liabilities, regardless of the steps which have been taken in making preparation for retirement, is clear. If the trustee defaulted or the fund were dissipated in some other manner the bonds would not cease to stand as corporate liabilities. As long as the bonds are outstanding, further, the corporation must continue to pay interest thereon, a fact which makes it apparent that the debt has not been reduced by accumulation of a retirement fund.

However, in one case (263 Mich. 126) it has been held that failure of the trustee to make payment does not compel the issuing corporation to make good the default, and that the loss falls upon the bondholders.

**Refunding Operations.** Particularly in the railway and utility fields, where a large part of the capital employed is represented continuously by long-term bonds, payment of maturing obligations is usually effected by refunding. The money to retire a particular issue, in other words, is secured through authorization and sale of another security, usually of

similar character. This does not always mean the outright sale of the new issue for cash and the application of the proceeds to retirement of the old. In some cases the holder is given the opportunity to subscribe for the new offering and is permitted to turn in his holdings under prescribed conditions in part or complete payment of his subscription. To the extent that the transaction takes this form it evidently amounts to an exchange or conversion. Refunding on a considerable scale usually requires the services of investment houses or other responsible third parties.

For example, to meet a maturity amounting to \$1,000,000 in 5% bonds and to raise additional capital the M Co. puts out an issue of \$1,250,000 of 4% bonds. The offering price of the new issue is 101 and accrued interest. The R Investment Co., acting as agent of the M Co., has full charge of floating the new issue and redeeming the old. The entire new issue is subscribed at the offering price, and all subscriptions are paid. As redeemed, the old bonds are turned over to the M Co. The R Investment Co. is allowed \$25,000 for its services. In summary the transaction would be recorded on the M Co.'s books—ignoring interest adjustments—somewhat as follows:

(1)		
R Investment Co. . . . .	\$1,262,500	
4% Bonds Subscribed—Par . . . . .		\$1,250,000
4% Bonds Subscribed—Premium . . . . .		12,500
To record taking of subscriptions for entire issue at 101		

(2)		
4% Bonds Subscribed—Par . . . . .	1,250,000	
4% Bonds Subscribed—Premium . . . . .	12,500	
4% Bonds Outstanding—Par . . . . .		1,250,000
4% Bonds Outstanding—Premium . . . . .		12,500
To record issue of bonds and delivery through underwriter		

(3)		
5% Bonds Outstanding . . . . .	1,000,000	
R Investment Co. . . . .		1,000,000
To record payment of maturing bonds per report of underwriter		

(4)		
Cash . . . . .	237,500	
Bond Issue Cost . . . . .	25,000	
R Investment Co. . . . .		262,500
To record commission of underwriter and receipt of balance		

These entries evidently assume that all detailed records of subscriptions are maintained by the R Investment Co. and that the underwriter deducts the commission agreed upon in remitting to the M Co.

**Refunding Prior to Maturity.** Where refunding is undertaken by calling bonds prior to maturity in order to take advantage of favorable interest rates a question arises as to the proper disposition of the excess of call price over net book value and the unamortized balance of the bond issue cost. Two main alternative plans for dealing with the situation have been proposed. First, the transaction with the original bondholders may be viewed as definitely closed with the process of redemption. This interpretation leads to the conclusion that all charges associated with the old bond issue, including excess of retirement price over carrying value, should be immediately absorbed through income or surplus. Second, the process of calling in the outstanding bonds and issuing the new may be viewed as merely an amendment of the original transaction. This interpretation encourages a fusing of unamortized bond issue cost, excess of call price over net book value, and costs incurred in the refunding operation, as charges to be spread over the life of the new security.

The first position and accompanying treatment are to be recommended. The contract with the first group of investors is effectively terminated by redemption at call price as provided in the original agreement. There is no exchange or conversion; no investor is required to subscribe for any part of the new issue. The old bonds are paid in full and are canceled. The new security is a distinct offering, is based upon new or revised underlying agreements, and may well be marketed through entirely new channels. It is true that refunding before maturity would presumably not be attempted unless some net advantage accrued to the borrowing corporation by the process, but it does not follow that the book losses suffered should be absorbed by charges to future income instead of being deducted from current earnings or accumulated surplus. To hold that such losses should be treated as deferred charges is somewhat allied to the doctrine that the undepreciated costs of plant assets retired prematurely to make way for improved facilities should be capitalized as part of the investment in new units—an untenable position as pointed out in Chapter X. The fact that all the conditions attaching to the existing obligation—including call price—must be carefully considered in relation to the interest rate and other conditions attaching to the prospective issue, in coming to a decision as to the wisdom of refunding, does not justify retention on the books of any element of old bond issue cost or any portion of the payment made to the retiring bondholders. Neither the conditions leading to retirement nor the method employed in extinguishing the old liability alter the amount of the new liability, or affect the interest charge thereon, or influence the manner of using the proceeds. Once the decision to terminate the original contract has been

reached, and carried into effect, there should be a complete elimination of the account balances related to such contract.

It should be noted that refunding does not cause a loss to be suffered; refunding is rather the occasion for acknowledging the loss which has accrued because the conditions attaching to the original contract are no longer favorable.

If the theory that early refunding can be viewed as an amendment of a larger transaction is accepted the accounting for liabilities is opened to the possibility that the closing out of the effects of a particular contract will be postponed again and again as a result of successive "revisions."

In a bulletin issued by the American Institute of Accountants a compromise plan, which contemplates absorption of the charges in question during the remaining life of the original contract, receives some support. This plan, however, is less satisfactory than immediate acknowledgment of the book losses associated with refunding and is also less appealing than the treatment which is based on the fused-transaction interpretation. A particular evidence of its weakness is found in the fact that it cannot possibly be defended when the maturity date of the new issue is earlier than the maturity date of the old bonds.

The costs of issuing the new bonds, like the similar charges associated with the preceding financing, should be set up as a deferred charge to be spread over the life of the contract to which they relate.

**Determining When to Refund.** Since call prices are usually in excess of issue prices, and substantial costs must be incurred in the process of refunding, a decision as to the desirability of refunding cannot reasonably be made simply by a comparison of interest rates. The question is, can the new bonds be sold on terms sufficiently favorable to more than offset the special charges to be incurred? A special complication is introduced by the fact that the term of the new bonds may be the same as the remaining life of the old, or may be either more or less than such remaining life. Perhaps the most satisfactory test is that of comparing the present values, at the current yield rate, of the total disbursements which must be made under the alternative possibilities during the balance of the term of the original contract, assuming that payment of the new bonds were to be made at that date. For example, on January 1, 1931, the M Co. issues twenty-year, 5% bonds in the amount of \$1,000,000.00 at par. Commissions and related costs amount to \$50,000.00. The bonds are callable on any interest date at 105. On January 1, 1941, the Company is considering refunding. At this time it would be possible to issue at par 4% bonds similarly secured for ten years or longer. The estimated expenditures required to carry out the refunding—aside from payments



to bondholders—total \$40,000.00. With these conditions the immediate cash value of the cost of fulfilling the old contract, computed in terms of 4% money, is determined by finding the present value of the interest annuity of \$25,000.00 each half-year and the present value of the maturity sum due in ten years. The first of these is \$408,785.83 (found by multiplying the twentieth figure in the 2% column of Table 2 by 25,000) and the second is \$672,971.33 (found by multiplying the twentieth figure in the 2% column of Table 1 by 1,000,000). The total is \$1,081,757.16. The immediate cash value of the total cost of fulfilling the proposed new contract, with interest at 4%, is \$1,000,000.00. But in order to refund it is also necessary to make an immediate payment of \$40,000.00 to cover costs, and to pay the old bondholders \$50,000.00 in the form of the excess of call price over maturity value. Adding these items gives a total figure of alternative cost of \$1,090,000.00. Comparing the two results it appears that no clear advantage can be obtained by refunding.

It is true that if refunding is not undertaken in the situation outlined the opportunity to arrange a long-term contract, extending beyond the maturity date of the old bonds, at the prevailing rate may be lost, as the cost of money may advance. This, however, is a matter of pure speculation. In general there is no way of demonstrating at a particular time what the prices and interest rates of the future will be. The safe assumption usually is that a change in one direction is no more likely than a change in the other. This does not deny that when rates are either very high or very low, viewed historically, there is some excuse for predicting a trend in a particular direction.

**Presentation of Fixed Liabilities in Balance Sheet.** It is desirable that the description used to report bonds or other long-term liabilities in the balance sheet include term, nominal rate of interest, and some indication of the character of the obligation with respect to seniority or manner in which secured. Maturity value should be shown, together with unaccumulated discount or unamortized premium, if any. Where there are a considerable number of separate issues to be reported some condensation on the face of the balance sheet is justified, but the complete list should be presented in a supporting schedule.

Should funded debt maturing in a year or less be included in current liabilities? Some accountants answer in the affirmative. As pointed out in Chapter I, however, such treatment may be misleading. The maturing obligation may be met by refunding, by use of an accumulated sinking fund, by liquidation of marketable securities or other current assets, or by expenditure of cash balances. In the first two situations, certainly, the picture of working capital would be definitely distorted by handling bonds of early maturity as a current liability; where payment

is to be made from reported current resources, on the other hand, listing the bonds scheduled for retirement as a part of current debt is not objectionable. Evidently no fixed rule is suitable for all cases.

Long-term contingent liabilities, such as guaranteed or endorsed bonds, should ordinarily be reported by means of footnotes or accompanying comments.

**Other Fixed Liabilities.** The accounting for single mortgages is similar to that required for note and bond issues. Mortgages are usually not issued at an acknowledged premium or discount, but cases often arise in which the amount of the consideration, measured by immediate market price, is less than the maturity value of the obligation. Mortgage contracts usually require annual payments of a stated percentage of the principal amount. Interest is more often paid annually than semiannually.

Where real estate or other fixed property is purchased on the installment plan the usual procedure on the buyer's books is to recognize the asset in the amount of its full cost and set up the unpaid balance of the contract as a liability. Then when each installment is paid the amount of the installment is treated as a reduction of the liability. The M Co., for example, buys a tract of timber from the R Co. on January 1, 1941, at a cost of \$100,000. The Company makes a down payment of \$10,000 and agrees to pay the balance in semiannual installments of \$10,000 each, with interest at 6% per annum, beginning June 30, 1941. The entries at date of purchase and at the dates of the two following installments paid are as follows:

January 1			
Timber Tract . . . . .	\$100,000		
Bank Account . . . . .		\$10,000	
Timber Purchase Contract—R Co . . . . .		90,000	
June 30			
Interest Charges . . . . .	2,700		
Timber Purchase Contract—R Co. . . . .	10,000		
Bank Account . . . . .		12,700	
December 31			
Interest Charges . . . . .	2,400		
Timber Purchase Contract—R Co. . . . .	10,000		
Bank Account . . . . .		12,400	

The interest charge for the first half-year is 3% of \$90,000 or \$2,700, and for the second half-year 3% of \$80,000, or \$2,400.

Occasionally installment contracts are drawn which include no provision for explicit interest. In such situations interest arises as a form of discount, as in the case of non-interest-bearing bonds, and care should be taken to avoid burying the interest element in an overstated property cost. For example, on January 1, 1941, the M Co. buys some special

equipment from the S Co. at a "cost" of \$50,000.00, payable \$10,000.00 down and the balance in four equal semiannual installments "without interest," beginning June 30, 1941. With these conditions and assuming a 6% rate of interest, the true cost of the equipment is \$47,170.98 (the present value of payments of \$10,000.00 per period for four periods at 3% per period—see Table 2—plus the down payment of \$10,000.00) and the difference between this amount and the stated purchase price, \$2,829.02, is interest which should be spread over the life of the contract. The appropriate entries are:

January 1, 1941			
Equipment	\$47,170.98		
Equipment Purchase Contract (S Co.)—Discount	2,829.02		
Bank Account		\$10,000.00	
Equipment Purchase Contract (S Co.)—Face		40,000.00	
June 30, 1941			
Interest Charges	1,115.13		
Equipment Purchase Contract (S Co.)—Discount		1,115.13	
To accrue interest at 3% on net liability of \$37,170.98			
Equipment Purchase Contract (S Co.)—Face	10,000.00		
Bank Account		10,000.00	
December 31, 1941			
Interest Charges	848.58		
Equipment Purchase Contract (S Co.)—Discount		848.58	
To accrue interest on purchase contract on net liability of \$28,286.11			
Equipment Purchase Contract (S Co.)—Face	10,000.00		
Bank Account		10,000.00	
June 30, 1942			
Interest Charges	574.04		
Equipment Purchase Contract (S Co.)—Discount		574.04	
To accrue interest at 3% on net liability of \$19,134.69			
Equipment Purchase Contract (S Co.)—Face	10,000.00		
Bank Account		10,000.00	
December 31, 1942			
Interest Charges	291.27		
Equipment Purchase Contract (S Co.)—Discount		291.27	
To accrue interest at 3% on net liability of \$9,708.73			
Equipment Purchase Contract (S Co.)—Face	10,000.00		
Bank Account		10,000.00	

See Chapter VIII for discussion of mortgages and purchase contracts from investment point of view.

**Interest Tables.** Tables 1 to 4 on the following pages illustrate the more important of the standard compilations involving compound interest. Table 5 consists of a few excerpts from published tables of bond values.

It will be noted that the rates for which figures are given in Tables 1 to 4 range only from  $1\frac{1}{2}\%$  to  $5\%$ . However, the tables may be used for higher rates in situations in which compounding semiannually is justified. If, for example, the present value of \$1.00 due in twenty years, at a rate of  $6\%$ , compounded semiannually, is desired, the appropriate figure is found on the fortieth line of the  $3\%$  column of Table 1. Similarly figures for annual rates of  $7\%$ ,  $8\%$ , and  $10\%$  may be found in the columns headed  $3\frac{1}{2}\%$ ,  $4\%$ , and  $5\%$ , respectively. Where compounding quarterly is involved the data for annual rates as high as  $20\%$  can be found from these tables for contracts running from one to twelve years.

The tables given do not furnish values for  $(1 + i)^n$ , the amount of \$1.00 invested for  $n$  periods at the rate  $i$ . However, such values may be readily computed by dividing 1.00 by the figures for  $\frac{1}{(1 + i)^n}$  shown in

Table 1. For example, the amount of \$1.00 invested for twenty-five years at  $2\%$  per year is found by dividing \$1.00 by .60953087, the figure from the twenty-fifth line of the  $2\%$  column of Table 1. The result is \$1.640606. Similarly values for the amount of an annuity of \$1.00, or for any other measurement in which  $(1 + i)^n$  is the primary element, can be computed from any one of the standard interest tables.

TABLE 1. PRESENT WORTH OF \$1.00  $\left( \frac{1}{(1+i)^n} \right)$

Periods	1½%	2%	2½%	3%	3½%	4%	5%
1	0.98522167	0.98039216	0.97560976	0.97087379	0.96618357	0.96153846	0.95238095
2	0.97066175	0.96116878	0.95181440	0.94259591	0.93351070	0.92455621	0.90702948
3	0.95631699	0.94232253	0.92859941	0.91514166	0.90194271	0.88899636	0.86383760
4	0.94218423	0.92384543	0.90595064	0.88848705	0.87144223	0.85480419	0.82270247
5	0.92826033	0.90573081	0.88385429	0.86260878	0.84197317	0.82192711	0.78352617
6	0.91454219	0.88797138	0.86229687	0.83748426	0.813550064	0.79031453	0.74621540
7	0.90102679	0.87056018	0.84126524	0.81309151	0.78599096	0.75991781	0.71068133
8	0.88771112	0.85349037	0.82074657	0.78940923	0.75941156	0.73069021	0.67683936
9	0.87459224	0.83675527	0.80072836	0.76641673	0.73373097	0.70258674	0.64460892
10	0.86166723	0.82034830	0.78119840	0.74409391	0.70891881	0.67556417	0.61391325
11	0.84893323	0.80426304	0.76214478	0.72242128	0.68494571	0.64958093	0.58467929
12	0.83638742	0.78849318	0.74355589	0.70137988	0.66178330	0.62459705	0.55683742
13	0.82402702	0.77303253	0.72542038	0.68095134	0.63940415	0.60057409	0.53032135
14	0.81184928	0.75787502	0.70772720	0.66111781	0.61778179	0.57747508	0.50506795
15	0.79985150	0.74301473	0.69046556	0.64186195	0.59689062	0.55526450	0.48101710
16	0.78803104	0.72844581	0.67362493	0.62316694	0.57670591	0.53390818	0.45811152
17	0.77638826	0.71416256	0.65719506	0.60501645	0.55720378	0.51337325	0.43629669
18	0.76491159	0.70015937	0.64116591	0.58739461	0.53836114	0.49362812	0.41552065
19	0.75360747	0.68643076	0.62552772	0.57028603	0.52015369	0.47464242	0.39573396
20	0.74247042	0.67297133	0.61027094	0.55367575	0.50256588	0.45638695	0.37688948
21	0.73149795	0.65977582	0.59538629	0.53754928	0.48557090	0.43883360	0.35894236
22	0.72068763	0.64683904	0.58086467	0.52189250	0.46915063	0.42195539	0.34184987
23	0.71003708	0.63415592	0.56669724	0.50669175	0.45328563	0.40572633	0.32557131
24	0.69954392	0.62172149	0.55287535	0.49193374	0.43795713	0.39012147	0.31006791
25	0.68920583	0.60953087	0.53939059	0.47760557	0.42314699	0.37511680	0.29330277

26	0.67962052	0.59757928	0.52623472	0.46369473	0.40883767	0.36068923	0.28124073
27	0.66898574	0.58586204	0.51339973	0.45013906	0.39101224	0.34681657	0.26784832
28	0.65909925	0.57437455	0.50087778	0.43707675	0.38165434	0.33347747	0.25509364
29	0.64935887	0.56311231	0.48866125	0.42434636	0.36874815	0.32065141	0.24294632
30	0.63976243	0.55207089	0.47674269	0.41198676	0.35627841	0.30831867	0.23137745
31	0.63030781	0.54124597	0.46511481	0.39998715	0.34423035	0.29646026	0.22035947
32	0.62099292	0.53063330	0.45377055	0.38833703	0.33258971	0.28505794	0.20986617
33	0.61181568	0.52022873	0.44270298	0.37702625	0.32134271	0.27409417	0.19987254
34	0.60277407	0.51002817	0.43190534	0.36604490	0.31047605	0.26355209	0.19035480
35	0.59386608	0.50002761	0.42137107	0.35538340	0.29997686	0.25341547	0.18129029
36	0.58508974	0.49022315	0.41109872	0.34503243	0.28983272	0.24366872	0.17265741
37	0.57644309	0.48061093	0.40106705	0.33498294	0.28003161	0.23429685	0.16443563
38	0.56792423	0.47118719	0.39128492	0.32522615	0.27056194	0.22528543	0.15660536
39	0.55953126	0.46194822	0.38174139	0.31575355	0.26141250	0.21662061	0.14914797
40	0.55126232	0.45289042	0.37243062	0.30655684	0.25257247	0.20828904	0.14204568
41	0.54311559	0.44401021	0.36334695	0.29762800	0.24403137	0.20027793	0.13528160
42	0.53508925	0.43530413	0.35448483	0.28895922	0.23577910	0.19257493	0.12883962
43	0.52718153	0.42676875	0.34583886	0.28054294	0.22780590	0.18516820	0.12270440
44	0.51939067	0.41840074	0.33740376	0.27237178	0.22010231	0.17804635	0.11686133
45	0.51171494	0.41019680	0.32917440	0.26443862	0.21265924	0.17119841	0.11129651
46	0.50415265	0.40215373	0.32114576	0.25673653	0.20546787	0.16461386	0.10599668
47	0.49670212	0.39426836	0.31331294	0.24925876	0.19851968	0.15828256	0.10094921
48	0.48936170	0.38653761	0.30567116	0.24199880	0.19180645	0.15219476	0.09614211
49	0.48212975	0.37895844	0.29821576	0.23495029	0.18532024	0.14634112	0.09156591
50	0.47500468	0.37152788	0.29094221	0.22810708	0.17905337	0.14071262	0.08720373

TABLE 2. PRESENT WORTH OF ANNUITY OF \$1.00  $\left( \frac{1}{1 - \frac{1}{(1+i)^n}} \right)$

Periods	1½%	2%	2½%	3%	3½%	4%	5%
1	0.98522167	0.98039216	0.97560976	0.97087379	0.96618357	0.96153846	0.95238095
2	1.95588342	1.94156094	1.92742415	1.91346970	1.89969428	1.88609467	1.85941043
3	2.91220042	2.88388327	2.85602356	2.82861135	2.80163698	2.77509103	2.7324803
4	3.85438465	3.80772870	3.76197421	3.71709840	3.67307921	3.62989522	3.54595050
5	4.78264497	4.71345951	4.64582850	4.57970719	4.51505238	4.45182233	4.32947667
6	5.69718717	5.60143089	5.50812536	5.41719144	5.32855302	5.24213686	5.07569206
7	6.59821396	6.47199107	6.34939060	6.23028296	6.11454398	6.00205467	5.78637340
8	7.48592508	7.32548144	7.17013717	7.01969219	6.87395554	6.73274487	6.46321276
9	8.36051732	8.16223671	7.97086553	7.78610892	7.60768651	7.43533161	7.10782168
10	9.22218455	8.98258501	8.75206393	8.53020284	8.31660532	8.11089578	7.72173493
11	10.07111779	9.78684805	9.51420871	9.25262411	9.00155104	8.76047671	8.30641422
12	10.90750521	10.57534122	10.25752460	9.95400399	9.66333433	9.38507376	8.86325164
13	11.73153222	11.34837375	10.98318497	10.63495533	10.30273849	9.98564785	9.39357299
14	12.54338150	12.10624877	11.69091217	11.29607314	10.92052028	10.56312293	9.89864094
15	13.34323301	12.84926350	12.38137773	11.93793509	11.51741090	11.11838743	10.37965804
16	14.13126405	13.57770931	13.05500266	12.56110203	12.09411681	11.65229561	10.83776956
17	14.90704931	14.29187188	13.71219772	13.16611847	12.65132039	12.16566885	11.27406625
18	15.67256089	14.99203125	14.35336363	13.75351308	13.18968173	12.65929697	11.68958690
19	16.42616837	15.67846201	14.97889134	14.32379911	13.70983742	13.13393940	12.08532086
20	17.16863879	16.35143334	15.58916229	14.87747486	14.21240330	13.59032634	12.46221034
21	17.90013673	17.01120916	16.18454857	15.41502414	14.69797420	14.02915995	12.82115271
22	18.62082437	17.65804820	16.76541324	15.93691664	15.16711243	14.45111533	13.16300258
23	19.33086145	18.29220412	17.38211048	16.4360839	15.62041047	14.85684167	13.48857388
24	20.03040537	18.91392560	17.88498583	16.93554212	16.05836760	15.24696314	13.79864179
25	20.71961120	19.52345647	18.42437642	17.41314769	16.48151459	15.62207994	14.09394457

26	21.39863172	20.12103576	18.95061114	17.87684242	16.89035226	15.98276918	14.37518530
27	22.06761746	20.70689780	19.46401087	18.32703147	17.28538451	16.32958575	14.64308362
28	22.72671671	21.28127236	19.96488866	18.76410823	17.66701885	16.66306322	14.89812726
29	23.37607558	21.84438466	20.45354991	19.18845459	18.03756700	16.98371463	15.14107358
30	24.01583801	22.39645555	20.93029259	19.60044135	18.39204541	17.29203330	15.37245103
31	24.64614582	22.93770152	21.39540741	20.00042849	18.73627576	17.58849356	15.59281050
32	25.26713874	23.46833482	21.84917796	20.38876553	19.06886547	17.87355150	15.80267667
33	25.87895442	23.98856355	22.29188094	20.76579178	19.39020818	18.14764567	16.00254921
34	26.48172849	24.49839172	22.72378628	21.13183668	19.70068423	18.41119776	16.19290401
35	27.07559458	24.99861933	23.14515734	21.48722007	20.00066110	18.66461323	16.37419429
36	27.66068431	25.48842428	23.55625107	21.83225250	20.29049381	18.90828195	16.54685171
37	28.23712740	25.96945341	23.95731812	22.16723544	20.57052542	19.14257380	16.71128734
38	28.80505163	26.44064060	24.34860304	22.49246159	20.84108736	19.36786423	16.86789271
39	29.36458288	26.90258883	24.73034443	22.80821513	21.10249987	19.58448484	17.01704067
40	29.91584520	27.35547924	25.10277505	23.11477197	21.35507234	19.79277388	17.15908635
41	30.45896079	27.79948945	25.46612200	23.41239997	21.59910371	19.99305181	17.29436796
42	30.99405004	28.23479358	25.82060683	23.70135920	21.83488281	20.18562674	17.42320758
43	31.52123157	28.66156233	26.16644569	23.98190213	22.06268870	20.37079494	17.54591198
44	32.04062223	29.07996307	26.50384945	24.25427392	22.28279102	20.54884129	17.66277331
45	32.55233718	29.49015987	26.83302386	24.51871254	22.49545026	20.72003970	17.77406982
46	33.05648983	29.89231360	27.15416962	24.77544907	22.70091813	20.88465356	17.88006650
47	33.55319195	30.28658196	27.46748255	25.02470783	22.89943780	21.04293612	17.98101571
48	34.04255365	30.67311957	27.77315371	25.26670664	23.09124425	21.19513088	18.07715782
49	34.52468339	31.05207801	28.07136947	25.50163693	23.27656450	21.34147200	18.16872173
50	34.99068807	31.42360589	28.36231168	25.72976401	23.45561787	21.48218462	18.25592546



TABLE 3. SINKING FUND INSTALLMENT WHICH WILL AMOUNT TO \$1.00  $\left(\frac{i}{(1+i)^n - 1}\right)$

Periods	1½%	2%	2½%	3%	3½%	4%	5%
1	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
2	0.49627792	0.49504950	0.49382716	0.49261084	0.49140049	0.49019608	0.48780488
3	0.32838996	0.32675467	0.32513717	0.32353036	0.32193418	0.32034854	0.31720856
4	0.24444478	0.24262375	0.24081788	0.23902705	0.23725114	0.23549005	0.23201183
5	0.19408932	0.19215839	0.19024686	0.18835457	0.18648137	0.18462711	0.18097480
6	0.16052521	0.15852581	0.15654997	0.15459750	0.15266821	0.15076190	0.14701747
7	0.13655616	0.13451196	0.13249543	0.13050635	0.12854449	0.12660961	0.12281982
8	0.11858402	0.11650980	0.11446735	0.11245639	0.11047665	0.10852783	0.10472181
9	0.10460982	0.10251544	0.10045689	0.09843386	0.09644601	0.09449299	0.09069008
10	0.09343418	0.09132653	0.08925876	0.08723051	0.08524137	0.08329094	0.07950458
11	0.08429384	0.08217794	0.08010596	0.07807745	0.07609197	0.07414904	0.07038889
12	0.07667999	0.07455960	0.07248713	0.07046209	0.06848395	0.06655217	0.06282541
13	0.07024036	0.06811835	0.06604827	0.06402954	0.06206157	0.06014373	0.05645577
14	0.06472332	0.06260197	0.06053653	0.05852634	0.05657073	0.05466897	0.05102397
15	0.05994436	0.05782547	0.05576646	0.05376658	0.05182507	0.04994110	0.04634229
16	0.05576508	0.05365013	0.05159899	0.04961085	0.04768483	0.04582000	0.04226991
17	0.05207966	0.04996984	0.04792777	0.04595253	0.04404813	0.04219852	0.03869914
18	0.04880578	0.04670210	0.04467008	0.04270870	0.04081684	0.03899933	0.03554622
19	0.04587847	0.04378177	0.04176062	0.03981388	0.03794033	0.03613862	0.03274501
20	0.04324574	0.04115672	0.03914713	0.03721571	0.03536108	0.03358175	0.03024259
21	0.04086550	0.03878477	0.03678733	0.03487178	0.03303659	0.03128011	0.02799611
22	0.03870331	0.03663140	0.03464661	0.03274739	0.03093207	0.02919881	0.02597051
23	0.03673075	0.03466810	0.03269638	0.03081390	0.02901880	0.02730906	0.02413682
24	0.03492410	0.03287110	0.03090428	0.02904742	0.02727283	0.02558683	0.02247090
25	0.03326345	0.03122044	0.02927592	0.02742787	0.02567404	0.02401196	0.02095246

26	0.03173196	0.02069923	0.02776875	0.02593829	0.02420540	0.02256738	0.01956432
27	0.03031527	0.02829309	0.02637687	0.02456421	0.02285241	0.02123854	0.01529186
28	0.02900108	0.02698967	0.02508793	0.02329323	0.02160265	0.02001298	0.01712253
29	0.02777878	0.02577836	0.02389127	0.02211467	0.02044538	0.01887993	0.01604551
30	0.02663919	0.02464992	0.02277764	0.02101926	0.01937133	0.01783010	0.01505144
31	0.02557430	0.02359635	0.02173900	0.01999893	0.01837240	0.01685535	0.01413212
32	0.02457710	0.02261061	0.02076831	0.01904662	0.01744150	0.01594859	0.01328042
33	0.02364144	0.02168653	0.01985938	0.01815612	0.01657242	0.01510357	0.01249004
34	0.02276189	0.02081867	0.01900675	0.01732196	0.01575966	0.01431477	0.01175545
35	0.02193363	0.02000221	0.01820558	0.01653929	0.01499835	0.01357732	0.01107171
36	0.02115240	0.01923285	0.01745158	0.01580379	0.01428416	0.01288688	0.01043446
37	0.02041437	0.01850678	0.01674090	0.01511162	0.01361325	0.01223957	0.00983979
38	0.01971613	0.01782057	0.01607012	0.01445934	0.01298214	0.01163192	0.00928423
39	0.01905463	0.01717114	0.01543615	0.01384385	0.01238775	0.01106083	0.00876462
40	0.01842710	0.01655575	0.01483623	0.01326238	0.01182728	0.01052349	0.00827816
41	0.01783106	0.01597188	0.01426786	0.01271241	0.01129822	0.01001738	0.00782229
42	0.01726426	0.01541729	0.01372876	0.01219167	0.01079828	0.00954020	0.00739471
43	0.01672465	0.01488993	0.01321688	0.01169811	0.01032539	0.00908989	0.00699333
44	0.01621038	0.01438794	0.01273037	0.01122985	0.00987768	0.00866454	0.00661625
45	0.01571976	0.01390962	0.01226752	0.01078518	0.00945343	0.00826246	0.00626173
46	0.01525125	0.01345342	0.01182676	0.01036254	0.00905108	0.00788205	0.00592820
47	0.01480342	0.01301792	0.01140869	0.00996051	0.00866919	0.00752189	0.00561421
48	0.01437500	0.01260184	0.01100599	0.00957777	0.00830646	0.00718065	0.00531943
49	0.01396478	0.01220396	0.01062348	0.00921314	0.00796167	0.00685712	0.00503965
50	0.01357168	0.01182321	0.01025806	0.00886550	0.00763371	0.00655020	0.00477674

TABLE 4. PERIODIC PAYMENT REQUIRED TO AMORTIZE \$1.00 AND INTEREST  $\left( \frac{i}{1 - \frac{1}{(1+i)^n}} \right)$

Periods	1½%	2%	2½%	3%	3½%	4%	5%
1	1.01500000	1.02000000	1.02500000	1.03000000	1.03500000	1.04000000	1.05000000
2	0.51127792	0.51504950	0.51882716	0.52261084	0.52640049	0.53019608	0.53780488
3	0.34388296	0.34675467	0.35013717	0.35353036	0.35693418	0.36034854	0.36720856
4	0.25944478	0.26262375	0.26581788	0.26902705	0.27225114	0.27549005	0.28201183
5	0.20908932	0.21215839	0.21524686	0.21835457	0.22148137	0.22462711	0.23097480
6	0.17552521	0.17852581	0.18154997	0.18459750	0.18766821	0.19076190	0.19701747
7	0.15155616	0.15451196	0.15749543	0.16050635	0.16354449	0.16660961	0.17281982
8	0.13358402	0.13650980	0.13946735	0.14245639	0.14547665	0.14852783	0.15472181
9	0.11960982	0.12251544	0.12545689	0.12843386	0.13144601	0.13449299	0.14069008
10	0.10843418	0.11132653	0.11425876	0.11723051	0.12024137	0.12329094	0.12950458
11	0.09929384	0.10217794	0.10510596	0.10807745	0.11109197	0.11414904	0.12038889
12	0.09167999	0.09455960	0.09748713	0.10046209	0.10348395	0.10655217	0.11282541
13	0.08524036	0.08811835	0.09104827	0.09402954	0.09706157	0.10014373	0.10645577
14	0.07972332	0.08260197	0.08553653	0.08852634	0.09157073	0.09466897	0.10102397
15	0.07494436	0.07782547	0.08076646	0.08376658	0.08682507	0.08994110	0.09634229
16	0.07076508	0.07365013	0.07659899	0.07961085	0.08268483	0.08582000	0.09226991
17	0.06707966	0.06996984	0.07292777	0.07595253	0.07904313	0.08219852	0.088669914
18	0.06380578	0.06670210	0.06967008	0.07270870	0.07581684	0.07899333	0.08554622
19	0.06087847	0.06378177	0.06676062	0.06981388	0.07294033	0.07613862	0.08274501
20	0.058234574	0.06115672	0.06414713	0.06721571	0.07036108	0.07358175	0.08024259
21	0.05586550	0.05878477	0.06178733	0.06487178	0.06803659	0.07128011	0.07799611
22	0.05370381	0.05663140	0.05964661	0.06274739	0.06593207	0.06919881	0.07597051
23	0.05173075	0.05466810	0.05769638	0.06081390	0.06401880	0.06730906	0.07413682
24	0.04992410	0.05287110	0.05591282	0.05904742	0.06227283	0.06558683	0.07247090
25	0.04826345	0.05122044	0.05427592	0.05742787	0.06067404	0.06401196	0.07095246

26	0.04673196	0.04969923	0.05276875	0.05593829	0.05920540	0.06256738	0.0656432
27	0.04531527	0.04829309	0.05137687	0.05456421	0.05785541	0.06123854	0.06829186
28	0.04400108	0.04698967	0.05008793	0.05329323	0.05660265	0.06001298	0.06712253
29	0.04277878	0.04577836	0.04889127	0.05211467	0.05544538	0.05887993	0.06604551
30	0.04163919	0.04464992	0.04777764	0.05101926	0.05437133	0.05783010	0.06505144
31	0.04057430	0.04359635	0.04673900	0.04999893	0.05337240	0.05685535	0.06413212
32	0.03957710	0.04261061	0.04576831	0.04904662	0.05244150	0.05594859	0.06328042
33	0.03864144	0.04168653	0.04485938	0.04815612	0.05157242	0.05510357	0.06249004
34	0.03776189	0.04081867	0.04400675	0.04732196	0.05075966	0.05431477	0.06175545
35	0.03693363	0.04000221	0.04320558	0.04653929	0.04999835	0.05357732	0.06107171
36	0.03615240	0.03923285	0.04245158	0.04580379	0.04928416	0.05288688	0.06043446
37	0.03541437	0.03850678	0.04174090	0.04511162	0.04861325	0.05223957	0.05983979
38	0.03471613	0.03782057	0.04107012	0.04445934	0.04798214	0.05163192	0.05928423
39	0.03405463	0.03717114	0.04043615	0.04384385	0.04738775	0.05106083	0.05876462
40	0.03342710	0.03655575	0.03983623	0.04326238	0.04682728	0.05052349	0.05827816
41	0.03283106	0.03597188	0.03926786	0.04271241	0.04629822	0.05001738	0.05782229
42	0.03226426	0.03541729	0.03872876	0.04219167	0.04579828	0.04954020	0.05739471
43	0.03172465	0.03488993	0.03821688	0.04169811	0.04532539	0.04908989	0.05699333
44	0.03121038	0.03438794	0.03773037	0.04122985	0.04487768	0.04866454	0.05661625
45	0.03071976	0.03390962	0.03726752	0.04078518	0.04445343	0.04826246	0.05626173
46	0.03025125	0.03345342	0.03682676	0.04036254	0.04405108	0.04788205	0.05592820
47	0.02980342	0.03301792	0.03640669	0.03996051	0.04366919	0.04752189	0.05561421
48	0.02937500	0.03260184	0.03600599	0.03957777	0.04330646	0.04718065	0.05531843
49	0.02896478	0.03220396	0.03562348	0.03921314	0.04296167	0.04685712	0.05503965
50	0.02857168	0.03182321	0.03525806	0.03886650	0.04263371	0.04655020	0.05477674

**TABLE 5. VALUES OF FOUR TWENTY-YEAR BOND ISSUES OF \$1,000,000.00, NOMINAL INTEREST PAYABLE SEMIANNUALLY, AT VARIOUS YIELD RATES**

Yield	3%	4%	5%	6%
3.00	1,000,000.00	1,149,579.23	1,299,158.45	1,448,737.68
3.05	992,555.06	1,141,453.91	1,290,352.77	1,439,251.62
3.10	985,177.71	1,133,400.63	1,281,623.55	1,429,846.47
3.15	977,867.29	1,125,418.68	1,272,970.07	1,420,521.45
3.20	970,623.16	1,117,507.38	1,264,391.60	1,411,275.83
3.25	963,444.65	1,109,666.05	1,255,887.44	1,402,108.84
3.30	956,331.14	1,101,894.01	1,247,456.88	1,393,019.76
3.35	949,281.98	1,094,190.60	1,239,099.22	1,384,007.84
3.40	942,296.56	1,086,555.16	1,230,813.76	1,375,072.36
3.45	935,374.25	1,078,987.03	1,222,599.82	1,366,212.61
3.50	928,514.43	1,071,485.57	1,214,456.72	1,357,427.87
3.55	921,716.49	1,064,050.14	1,206,383.79	1,348,717.44
3.60	914,979.84	1,056,680.10	1,198,380.36	1,340,080.62
3.65	908,303.88	1,049,374.83	1,190,445.78	1,331,516.73
3.70	901,688.02	1,042,133.71	1,182,579.39	1,323,025.08
3.75	895,131.67	1,034,956.11	1,174,780.55	1,314,604.99
3.80	888,634.26	1,027,841.44	1,167,048.61	1,306,255.79
3.85	882,195.21	1,020,789.08	1,159,382.95	1,297,976.83
3.90	875,813.96	1,013,798.45	1,151,782.94	1,289,767.44
3.95	869,489.94	1,006,868.95	1,144,247.96	1,281,626.97
4.00	863,222.60	1,000,000.00	1,136,777.40	1,273,554.79
4.05	857,011.40	993,191.02	1,129,370.64	1,265,550.26
4.10	850,855.79	986,441.44	1,122,027.08	1,257,612.73
4.15	844,755.22	979,750.68	1,114,746.14	1,249,741.60
4.20	838,709.12	973,118.20	1,107,527.22	1,241,936.24
4.25	832,717.17	966,543.42	1,100,369.73	1,234,196.04
4.30	826,778.53	960,025.81	1,093,273.10	1,226,520.39
4.35	820,892.39	953,564.82	1,086,236.76	1,218,908.69
4.40	815,059.69	947,159.91	1,079,260.13	1,211,360.36
4.45	809,278.42	940,810.54	1,072,342.67	1,203,874.79
4.50	803,548.58	934,516.19	1,065,483.81	1,196,451.42
4.55	797,869.68	928,276.34	1,058,683.00	1,189,089.65
4.60	792,241.23	922,090.46	1,051,939.69	1,181,788.93
4.65	786,662.73	915,958.05	1,045,253.36	1,174,548.68
4.70	781,133.71	909,878.59	1,038,623.46	1,167,368.34
4.75	775,653.69	903,851.58	1,032,049.47	1,160,247.36
4.80	770,222.20	897,876.53	1,025,530.87	1,153,185.20
4.85	764,838.77	891,952.95	1,019,067.13	1,146,181.31
4.90	759,502.94	886,080.34	1,012,657.74	1,139,235.14
4.95	754,214.25	880,258.22	1,006,302.20	1,132,346.17
5.00	748,972.25	874,486.12	1,000,000.00	1,125,513.88

### QUESTIONS

1. What determines the issue price of stock issued in exchange for convertible bonds? Can loss to the stockholders result from the exercise of the conversion privilege by the bondholders?
2. How does "profit" or "loss" arise through the redemption of bonds?

3. What is the proper interpretation of "treasury bonds"? Why are such bonds never valid assets? Discuss the use of a special account in this connection.

4. "Strictly speaking a corporation does not 'buy' or 'sell' its own bonds." Explain.

5. Describe the use of a sinking fund in connection with a program of debt retirement. What are some of the objections to the traditional form of accumulation?

6. Give entries illustrating utilization of sinking fund as accumulated to acquire bonds by call or purchase. How should bonds acquired by the trustee and held in the "fund" be accounted for by the issuing corporation? Under what circumstances is interest sometimes paid on such bonds? Give illustrative entries.

7. "The balance in a sinking fund dedicated irrevocably to bond retirement should be reported in the balance sheet as a contra to outstanding bonds, whether it be composed of bonds acquired but not yet formally canceled, other securities, cash, or some combination of these elements." Discuss.

8. "In early refunding operations undertaken because of prevailing low interest rates the excess of call price over net book value of outstanding bonds should be treated as a deferred charge, amortizable over the life of the new issue."

9. How should unamortized bond issue cost be dealt with in the case of refunding prior to maturity? Cost of issuing the new bonds?

10. With illustrative figures show how a reasonable decision may be reached as to the desirability of early refunding.

11. "Bonds maturing within one year of date of balance sheet should be reported in the same section as accounts payable and other current liabilities." Discuss.

12. With illustrative entries show how an interest-bearing purchase contract should be accounted for. A contract carrying no explicit interest.

13. Explain the use of each of the interest tables illustrated.

## XXIX

### ANALYSIS BY RATIOS

**Statement Analysis.** The development of the art of analyzing the financial statistics of business enterprises—of making the figures meaningful—has not kept pace with the improvement in underlying techniques and methods of compilation. In the case of large corporations, and for many of the smaller companies, the required data are available in usable form, or might be made so available without unreasonable revamping of accounting and statistical procedures and with no considerable increase in expenditures on this account, but the means of presenting and translating the data for the benefit of those concerned are neither fully developed nor widely employed. Accountants have been preoccupied with problems of verification and disclosure of immediate financial position and have been reluctant to elaborate the traditional methods of reporting. Another restricting influence has been the tendency on the part of many managements to refuse to accept responsibility for supplying complete information to the rank and file of stockholders—a condition which some try to excuse by averring that the typical investor is not interested in details or in any event is incapable of understanding statements and analyses, whatever their form and character. In recent years, however, there has been an increasing recognition of the fact that those who furnish the funds are entitled to full and clear reports of operation and position, with resulting marked improvement in the form of financial statements and some advance in methods of analysis. A potent influence in this connection has been the establishment of the Securities and Exchange Commission. It is to be hoped that this Commission, which has an exceptional opportunity to mold accounting principles and procedures, will continue to exert a constructive pressure on accounting practice.

These comments assume, of course, that those who furnish the capital of the enterprise have a right to all vital information available to the immediate management—an assumption to which many administrative officials seem to take exception on one ground or another. They also assume that at least some of the parties who “put up the money” have the interest and capacity to make use of complete analytic reports—not

a ridiculous premise in this day of investment trusts and their technical advisers.

Interpretive devices are even more important to the immediate management than to present or prospective stockholders and creditors. In the large enterprise, in particular, it is impossible for the management to come to grips with either the details or the essential outlines of the business without the aid of a stream of reports and accompanying analyses. And there is plenty of room for improvement in this area. Business officials often imagine that they as "insiders" are fully informed, even if the scattered stockholders are not, when as a matter of fact their comprehension of essential relationships and financial movements is by no means clear and complete.

It is granted that analyses based upon the data of the accounts, however intelligently and scrupulously prepared, have limitations as a means of understanding and controlling business affairs. It seems reasonable to believe, nevertheless, that the possibilities of making use of accounting statements have not been fully exploited, and that further efforts should be made to develop effective methods of analysis and to extend their employment by accountants and statisticians.

In the discussion of the content and presentation of periodic statements in early chapters the importance of making such statements as intelligible and significant as possible was stressed, and the possibilities of promoting these characteristics through the use of adequate captions, discriminating arrangements of data, explanatory comments, and supporting schedules were suggested. In these chapters attention was also called to comparative presentation, analyses of working capital, cumulative statements, and other special means of placing emphasis and facilitating interpretation. At this point a more intensive exploration of the subject of interpretation is undertaken with the discussion centering around the following methods or lines of attack: (1) ratio or percentage computation; (2) analysis of movement and composition of "funds"; (3) comprehensive and organized discussion; (4) graphic presentation; (5) application of price indexes in comparative reporting. The first of these approaches is considered in this chapter, the others in following chapters.

**Ratios Defined—Principal Types.** In general a financial ratio is simply a definite expression of the quantitative relationship or proportion of two distinct elements, or of two aggregates or groups of elements, derived from accounts or statements. A financial ratio, to put the matter somewhat differently, is a comparison of the measures, in dollars and cents, of two related conditions or movements of the enterprise. Ratios may be stated by common fraction, decimally, or in percentage form. Thus if advertising cost in a given concern for a particular period amounts to



\$100,000 and sales for the same period total \$2,000,000 the ratio of the two elements is  $100,000/2,000,000$ , .05, or 5%. The percentage form is the most common mode of expression. The amount of advertising cost, to state the ratio just given in full, is equal to 5% of the total volume of business.

The significance of ratios in interpreting the data of financial reports rests on the assumption that relationships may be more important than individual amounts or, at any rate, that relationships are in themselves facts of intrinsic importance. This does not mean, it should be added, that all possible comparisons of the data of the enterprise can be expected to yield valuable information.

In terms of the principal statements financial ratios can be classified under three main heads: (1) balance-sheet ratios; (2) income-sheet ratios; (3) ratios involving both statements.

**Equity Ratio—Long-Run Solvency.** The balance sheet furnishes two ratios, or groups of ratios, of first importance. One of these is the equity ratio. This expresses the relation of the two main types of equities, creditor interests and proprietary interests, to the total resources of the enterprise. It may be stated in a number of ways of which the following are the principal variations: (1) total stock equity (in the case of the corporation) to total assets; (2) total stock equity to total of all equities; (3) total stock equity to total of liabilities; (4) total liabilities to total assets. The first form is in general the most effective as it represents a clear-cut answer to the question: What part of the total resources is furnished by or represented by the proprietary equity—the stockholders in the case of a corporation? The second form is quantitatively identical with the first, assuming that the assets and equities as presented by the balance sheet are equivalent in amount. The third method of presentation, often referred to as the “worth-debt” ratio, is widely used but is in general a less clear means of stating the underlying relationship. The fourth arrangement, the complement of the first, places the emphasis on the percentage of liabilities.

The equity ratio is a means of focusing attention sharply on the question of long-run solvency. In general the existence of a high percentage of proprietary capital indicates that the danger of liquidation or reorganization as a result of defaulted obligations is relatively slight. Undoubtedly in many enterprises which survive protracted lean periods without serious embarrassment the favorable capital structure is a fact of outstanding importance. On the other hand it should not be assumed that a high equity ratio in itself demonstrates a strong working-capital position or a favorable situation with respect to earnings, either in the past or in the future. The use of a relatively large amount of borrowed

capital is not in general a primary cause of business failure. Moreover, the possible advantage to the stockholders of "trading on the equity" to a reasonable degree must not be overlooked (although there is reason to believe that this possibility has been greatly overemphasized in discussions of corporate financing).

In the process of computing this ratio care must be taken to deduct contra valuation "reserves" in finding "total assets." Likewise all liability "reserves" must be excluded from the stock equity. It should be remembered that the stock equity, broadly defined, comprehends the interests of all classes of stockholders. Where there is preference stock outstanding of such a character as to contrast sharply with the common or junior stock the ratio represented by the relation of the residual equity to total resources may be of special importance. All surplus accounts, appropriated or unappropriated, are of course to be included in the stock equity when computing the equity ratio; for the purpose in hand surplus represents a part of the stockholders' "capital." Among large "industrial" companies the equity ratio commonly ranges from 80 to 95%. In railways and other utilities, where the practice of heavy borrowing is—unfortunately—a long-established tradition, the percentage of proprietary capital may be as low as 35% and is seldom above 65%. Banking furnishes the extreme example of operation on a "shoestring"; here the equity of the stockholders is seldom over 10%—a condition which has never been convincingly justified.

Various subordinate ratios under this general head may be computed. Thus the relationship of the equity of a particular type of liability, or of a particular class of stock, to the total assets may be of interest in certain cases. Other examples, of minor importance in most situations, are the percentage of accumulated surplus to total assets and the percentage of original invested capital to the assets.

**Current Ratio—Working-Capital Position.** The second main type of relationship found in the ordinary balance sheet is the current ratio. In traditional form this relationship is found by dividing the amount of current assets by the amount of short-term liabilities. Thus if the current assets as reported on a particular date total \$1,000,000, while the current liabilities at the same time amount to \$250,000, the current ratio is  $1,000,000/250,000$  or 4 to 1. An alternative and intrinsically more satisfactory method of comparison is to state the ratio as the percentage of current assets to current liabilities or, still better, the percentage of current liabilities to current assets. What is desired is a clear expression of the extent to which current assets are covered by short-term liabilities and the relative margin of net working capital, and percentage statements, with the amount of current assets taken as the base of 100, meet

this need effectively. Using the above figures, for example, it appears that current liabilities amount to 25% of current assets, the remaining 75% representing net working capital.

The current ratio has long been considered important as a test of immediate solvency, and no doubt has real significance in this connection. However, the conventional conception of 2 to 1 as a generally satisfactory relationship has been overworked. Working-capital requirements naturally vary between enterprises and between periods in the particular concern, and the question as to the amount of current resources needed and what constitutes a proper quantitative relationship between such resources and the short-term obligations must be settled on its merits in the light of all attendant circumstances. The importance of large backlogs of liquid assets to meet depression conditions, and to make it possible to take advantage of new developments, has been widely stressed in recent years. A striking example is found in the ability of the Packard Motor Car Co. in the thirties to shift to the production of medium-priced cars; the necessary investment in new facilities was largely made possible by the very strong working-capital position of the company. Many corporate managements, with the great uncertainties of the future in mind, consider it good policy to maintain a current ratio ranging from 5 to 1 to 10 to 1.

In computing the total of current assets, it is hardly necessary to say, care must be taken to exclude all doubtful elements. Thus, inventory elements which are not likely to be liquidated in a year's time at the outside, or which for other reasons have a highly uncertain realizable value, should presumably be excluded. Likewise restricted investments, even where represented by securities which are in themselves readily marketable, are not an element in the current funds available or shortly to be made available to meet obligations. At the same time it is necessary to see to it that all current liabilities, including estimated "reserves" to cover amounts to be paid shortly on claims already accrued, are included in the short-term liability total. The data presented in ordinary financial statements, it may be added, often are not sufficiently detailed to make possible a refined computation of the current ratio.

In view, in particular, of the fact that some types of current assets are not highly liquid a more severe test of the status of working capital and debt-paying power is often applied. This is usually referred to as the "quick" ratio, and consists of a comparison of the total of cash, marketable and available securities, and first-class current receivables with the amount of short-term obligations. This test emphasizes the relationship of purchasing power which is either immediately available or can be

readily marshalled and the total of all claims immediately payable or shortly to become payable. In some cases it may be desirable to compute and emphasize the ratio of cash on hand and in bank to total current liabilities.

The current ratio, it should be recognized, has limitations as a device for assaying working-capital position. It affords no qualitative test of current assets; it does not directly take account of the effect of probable cash receipts and liability increases in the near future. In using the current ratio, moreover, care must be taken to avoid stressing unduly momentary position, as indicated by the ratio on a particular date; in reaching a conclusion there should be numerous observations and adequate attention to averages and trends. Scheduling of prospective receipts and disbursements is helpful in this connection.

A special question is the treatment of bonds or other long-term obligations which are maturing shortly. Should the amount of such liabilities be included in current obligations in computing the current ratio and interpreting working-capital position? In general the answer is that such liabilities should be excluded provided any funds with which payment is to be made and which are already accumulated are excluded from current assets. Likewise cash funds on hand but dedicated to construction or other noncurrent purposes should be excluded if serious distortion is to be avoided. In all cases, it goes without saying, all special conditions should be carefully noted in interpreting current position.

**Other Balance-Sheet Ratios.** Aside from the equity and current ratios, just discussed, few of the possible comparisons of balance-sheet amounts have much general significance. The principal kinds of relationships of minor importance which are sometimes computed may be indicated as follows: (1) current assets or fixed assets to total assets (or some particular asset—for example, inventory—to total assets or to some subdivision of assets—for example, receivables, or plant); (2) current liabilities or fixed liabilities to total equities or to proprietary equity (or some particular liability subdivision—for example, accounts payable—to some other class of liability—for example, notes payable); (3) equity of one class of stock to total stock equity or to equity of another type of stock (or section of proprietary equity such as surplus to total stock equity or to equity of particular class of stock); (4) particular class of liability or section of stock equity to particular asset or class of assets (for example, accounts payable to inventory, mortgage bonds to mortgaged property, or surplus to cash). The relation of a contra-valuation account to the gross book amount of the asset to which the accumulated offset applies—as, for example, the percentage of accrued depreciation to the cost (or

other basic value) of the depreciable property—is a type of minor ratio based upon data appearing in the balance sheet—or which should so appear—which is not covered by the foregoing list.

The subordinate ratios are sometimes useful in detailed studies of credit position and in special analyses along lines of internal administration. Further, comparisons which have little general significance are often important in audit programs, as a means of bringing to light conditions of fraud or gross mismanagement. The first clue to a serious state of affairs may be an unusual situation with respect to a very commonplace financial relationship, and the discriminating auditor is always on the lookout for such signs. (The auditor's attention, of course, is not confined to balance-sheet relationships.)

**Operating Ratios.** The operating ratio, the relation of the total of operating costs to total operating revenue, is usually deemed to be the most important income-sheet ratio. This ratio represents the percentage of net sales or other form of revenue consumed by cost requirements, and is closely watched by management. Its complement, operating net to total revenue, displays the fraction of each dollar of sales available for income purposes. If, for example, operating revenues amount to \$1,000,000 and expenses applicable thereto total \$750,000, the operating ratio is 75%, and operating net is 25% of revenues. As far as possible the operating ratio should be computed for each department or principal activity as well as for the business as a whole. In general the lower the operating ratio, the better, but it should be recognized that an apparently favorable condition at this point does not demonstrate a high level of earning power.

For some purposes operating ratios may be defined narrowly in terms of the main stream of revenues and the strictly applicable costs; for other purposes a broad conception which includes ancillary revenues and charges may be adopted. Extraordinary gains and losses are usually excluded.

The relation of any broad group of operating charges—or of any specific expense—to revenue may be viewed as a subordinate operating ratio. Examples are merchandise cost of sales—or factory cost of sales—to net sales, selling expense to sales, depreciation and maintenance to sales, administrative salaries to sales, and collection expense to credit sales. Charts showing composition of the revenue dollar (see discussion of graphic presentation in Chapter XXXI) often emphasize a number of these percentages. The importance of stressing such computations, particularly in internal administration, is clear; effective control of costs involves close observation of relationships as well as amounts.

The percentage of margin or "gross profit"—the spread between the

assigned cost of goods sold and sales—to sales represents an allied relationship. This ratio has a limited significance but may be of some value, especially in departmental statistical analysis. As pointed out in Chapter I, there is good reason for not presenting the amount of the trading margin in the general income sheet and wherever the calculation is made care must be taken not to confuse such margin with net profits.

**Other Income-Sheet Ratios.** The amount of one class of expense to total operating charges, or to another expense subdivision, is a type of relationship which it may be desired to emphasize in some cases. Examples are the ratio of selling expense to total operating charges or to production cost of sales, transportation charges to merchandise cost of sales, and depreciation and similar deductions to total of operating costs. In general such comparisons are less useful than those which relate costs to total revenues.

Another type of income-sheet ratio expresses the relation of total income available for interest charges to the amount of such charges—the number of times the interest requirement is earned. For example if the amount of net income before the deduction of bond interest, but after all prior charges have been deducted, is \$1,000,000 and the interest on bonds accruing for the period is \$500,000, the ratio is 200% or 2 to 1—the interest is earned “two times.” Where preference stock is outstanding a similar calculation may be made to show the number of times the regular dividend is earned. Or it may be desired to determine the number of times fixed charges, including both interest and preferred dividends, are earned. Ratios of this type are of importance in focusing attention upon the position of particular classes of investors.

The disposition of net profit as between dividends and surplus can be emphasized by statement in percentage form. For example, if net profits amount to \$1,000,000 and dividends for the period total \$750,000, it appears that the dividend appropriation absorbs 75% of the current earning power, leaving 25% to be carried to surplus. These ratios indicate something of the degree of conservatism exercised by the management in its dividend policy.

**Earning Power.** The outstanding ratio based upon the data of both of the principal statements—and the most important of all financial ratios—is the earning rate. This ratio has two main forms: (1) the rate of earnings realized on total resources employed; (2) the rate earned on the total equity of proprietors or stockholders.

The first of these expresses the degree of success achieved by the enterprise as an entity without reference to the form of capital structure employed; it measures earning power from the standpoint of all capital invested, regardless of source; it represents the level of managerial per-

formance in terms of income. This earning rate is especially useful in comparing enterprises having different forms of capitalization, and in comparing different periods in the history of a particular enterprise which has undergone changes with respect to the relative amounts of borrowed and proprietary capital.

The second type of earning rate expresses the relation of the net profits available to the proprietary equity, after all interest charges and income taxes, to the amount of such equity, including surplus as well as original investment. This rate is more widely used in statement analysis than the rate of earnings on total capital, in part because of general lack of understanding of the importance of the other form of computation, and in part because of the inadequacy of the data commonly available. There is also the fact that rates of return on stocks are given special attention in financial circles.

Where preference shares are outstanding the earning rate of the common or residual equity may be more significant than the relation of the earnings available to all stockholders, of both classes, to the combined stock equity.

The integrity of calculations of earning power depends largely on the character of the accounting data on which they are based. If, for example, particular assets have been entirely excluded from the accounts or have been depreciated or amortized too rapidly the amounts of both members of the ratio will be misstated and the resulting rate will not be reliable. Similarly inclusion of nonexistent assets and failure to make adequate allowances for depreciation and amortization will lead to misstatement. Undoubtedly the apparent earning rates have frequently been entirely out of line with the facts.

Even where the accounting data have been compiled in the most acceptable manner the earning rates based thereon are subject to inherent limitations, which it is not well to ignore. Accounts, it should be recalled, are based on costs and asset balances usually represent—in large measure—unamortized costs rather than market values. It follows that the earning power computed by reference to financial statements should not be interpreted as expressing the level of income either earned or realized on the current value of the investment.

**Determining Enterprise Earning Rate.** In the computation of the "all-capital" or managerial earning rate a number of problems arise with respect to both numerator and denominator. In the first place, what disposition should be made of income taxes? The governmental unit collecting the tax has no capital committed to the enterprise in the ordinary sense and therefore has no equity in earnings arising out of capital furnished. From this standpoint it would seem reasonable to

deduct the amount of such taxes in computing the amount of earnings available to all equities. From the standpoint of management, on the other hand, there is something to be said for the view that net earnings include income taxes, as well as the amount available for interest and proprietary distributions. This view is supported by the fact that income taxes are by definition a levy upon net earnings, not a cost of producing revenue. On the whole it is probably advisable to define net earnings as the amount left for the private investors or furnishers of capital after all charges and levies have been deducted, including income taxes in so far as such taxes represent a flat rate on net profit. In the case of graduated or excess-profits taxes, the effects of which vary sharply with the conditions of each enterprise, the amount of earnings may well be determined without deduction of the differential taxes, especially where the resulting rates are to be used for comparative purposes. In this connection it may be mentioned that significant comparisons of reported earning rates of corporations and unincorporated enterprises are made difficult by the fact that corporations are the only type of enterprise, in general, subject to income taxes.

Second, what treatment should be accorded to "nonoperating" incomes and charges, especially irregular "capital" gains and losses? In dealing with the earning power of the enterprise as a whole it is usually expedient to adopt a broad conception of applicable incomes and charges and to include in the computation, accordingly, all but the very exceptional elements (and even these may be considered where the results are properly qualified and interpreted). In attempting to express the earning rate of a particular operating department or division, on the other hand, the amount of earnings employed is the net revenue of such department or division, as determined by the compilation of revenue and charges which are found to be clearly assignable.

Third, in computing total resources should assets not closely associated with operating activities be included? This question should be settled in a manner that harmonizes with the measurement of net earnings. If all special incomes and deductions are taken into account in computing earnings a correspondingly broad definition of applicable resources should be employed. For example, if interest and dividends earned on securities held in special funds are treated as income in the computation, the cost or other book value of the securities must be included in total assets. In this as in other connections care should of course be taken to disclose special conditions, and indicate the necessary qualifications, in using earning rates comparatively.

Fourth, how should liabilities such as book accounts, payrolls, etc., which do not explicitly share in net earnings, be dealt with? Non-in-



terest-bearing accounts often represent the source of a considerable fraction of the total capital—in the broad sense—employed by the enterprise, and where this is the case, and the total resources are compared with only the net earnings available to interest-bearing creditor capital and to the proprietary equities, an obvious distortion results. That is, if the rate is drawn from a fraction of which the numerator is the amount of net earnings to all capital excluding that represented by non-interest-bearing liabilities, while the denominator is the total of all employed resources regardless of origin, such rate does not reflect the true earning level of the enterprise. In view of this situation an adjustment is recommended wherever feasible. This may take either of two forms. One possible procedure consists of the reduction of the amount of resources used by the amount of liabilities representing equities not explicitly participating in earnings. An alternative—and more refined—procedure involves estimating the implicit interest earned by the capital requiring no explicit return and including such estimated interest in the net earnings which are compared with the total resources. This alternative form of adjustment rests on the assumption that interest on the accounts appearing to bear no interest is included in the prices of the goods and services acquired through the use of such accounts—an assumption which can in general be justified without great difficulty—and that such implicit interest should accordingly be taken out of operating costs and included in net earnings of all capital. The commercial bank rate is presumably the appropriate rate of interest to be used in making the estimate.

In comparing the apparent earning rates of different concerns the fact that valuation bases are not always consistent must not be overlooked. Where all assets are recorded at cost, moreover, the data of resources are not fully comparable because of the varying dates of acquisition and the different price levels consequently involved. Depreciation and maintenance policies and inventory methods and procedures likewise differ sharply, even among enterprises in the same line of business. Another point of variation lies in the extent to which intangible values are recognized. With respect to the measurement of revenue and the accruing of expenses, further, a wide range of practices is found. In view of such features of the reported information, evidently, care must be exercised in interpreting and utilizing earning rates drawn from published statements.

Where a number of interpretations are possible in a given situation the computation of a rate on each important alternative basis is desirable, with careful explanation of the factors employed in each case.

Ideally the amount of resources to be compared with the amount of earnings should be the average employed or applicable for the period, and

evidently such an average cannot be computed from the data of a single balance sheet. Applying earnings for the period to the resources reported as of the end of the period, which is often done, is inaccurate in that it ignores the fluctuations in assets, seasonal or otherwise, which have occurred, and may yield a serious misstatement in the case of a rapidly growing or declining enterprise. The greater the number of observation points available, the more satisfactory will be the estimate of employed resources, although averages drawn from the data of two successive balance sheets are often adequate.

**Profit and Dividend Rates.** The problem of dealing with special loss and gain items arises in the computation of the proprietary earning rate as well as in the determination of the "all-capital" rate, and should in general be settled along the line indicated above. That is, only in the case of adjustments clearly not attaching to the current period should the effect be excluded from the net profit figure. It should also be recognized that the amount of the proprietary equity, like the amount of employed resources, depends in considerable measure upon the policies of asset valuation in effect, and accordingly care must be exercised in making use of profit rates computed under unusual conditions. Where the amount of the change in stock equity due to appraisals can be isolated it is of course desirable to calculate a profit rate on each of the available bases.

The denominator of the fraction representing the profit ratio should be the average proprietary equity for the period, taking into account the effect of accruing losses or profits, dividend appropriations, and new investment or reduction of capital. Often it is difficult to determine a fully satisfactory rate from the data available.

In dealing with a corporation with one or more issues of preference stock the distinction between the rate earned on the entire stock equity and the rate of profit earned on the equity of the common stock is important, as noted earlier. A complication arises in this connection where the preferred stock has participating features and where it may accordingly be necessary to treat a part of surplus and surplus reserves as attaching to the senior security. In some instances it is very difficult to make an apportionment which is clearly harmonious with all the conditions, particularly where the going-concern and liquidation points of view are in conflict. The rate of profit on common stock equity is an outstanding ratio in corporate finance. It is often reported, however, in dollars and cents per share rather than as a percentage of the book value of the stock. The rate of profit on par or stated value is usually not a fact of much importance; the proper base is the total amount of the equity.

Differential profit rates are of interest in some circumstances. The rate, for example, which a particular enterprise is earning over representative concerns in the same line is useful in emphasizing the preferential position of the enterprise. Another differential rate of wide significance is the amount by which the particular profit rate exceeds the ordinary rate of interest on long-term business borrowings. Deficiencies in rates actually earned may also be calculated by comparing such rates with appropriate standards.

The dividend rate—the percentage represented by the relation of the amount of the prevailing dividend, on an annual basis, to the book amount of the equity—is of considerable importance in the investment field. By the “yield” rate, however, is usually meant the relation of the annual dividend at the current level to the market price of the stock. Dividends are also frequently referred to in terms of dollars and cents per share. The rate of dividend to par or other formal value, still frequently stated in reports, is not in general a significant fact, particularly in the case of common stocks.

**Computation of Earning Rates Illustrated.** An example will serve to make the foregoing discussion of the measurement of earning power more definite. The materials to be used are the comparative statement data of the M Co. for the years 1940 and 1941, given on page 671.

Treating the reserves for depreciation and bad debts as contra-asset accounts, and including intangible and all other resources as booked, the amount of assets employed at the beginning of 1941 is \$330,000 and the corresponding figure for the end of the year is \$363,000, which gives an average for the year of \$346,500. Net earnings for 1941, after the deduction for income taxes but before interest charges, total \$24,000. The liabilities not explicitly bearing interest (apparently the accounts and accrued items) total \$30,000 at the beginning of 1941 and \$25,000 on December 31, an average of \$27,500. Assuming an implicit interest rate of 6% on the average amount of such liabilities gives an estimated charge of \$1,650, and adding this amount to the net earnings available to bondholders, noteholders, and stockholders results in a total net, for all capital furnished, of \$25,650. Dividing this amount, in turn, by the average assets as computed above gives an earning rate of 7.40%.

If the amount of the charge for Federal income taxes is included in net earnings, the total net becomes \$28,650 (\$25,650 plus \$3,000), and the earning rate becomes 8.27%. As indicated above, there is some justification for the view that income taxes are a part of net earning power from a broad managerial point of view.

If marketable securities are viewed as nonoperating assets, and are accordingly excluded from the asset base, and if the earnings realized on

these securities are likewise excluded from income, the average amount of assets is \$271,500 (\$346,500 less \$75,000) and the applicable earnings—before deduction of income taxes—become \$25,650 (\$28,650 less \$3,000). The “operating” earning rate on this basis is 9.45%. In this calculation,

**M COMPANY**  
Balance-Sheet Data

	<i>Dec. 31</i> <i>1940</i>	<i>Dec. 31</i> <i>1941</i>
<i>Debits</i>		
Cash . . . . .	\$ 10,000	\$ 15,000
Marketable Securities . . . . .	50,000	100,000
Receivables . . . . .	40,000	30,000
Inventories . . . . .	60,000	50,000
Other Current Assets . . . . .	5,000	5,000
Land . . . . .	30,000	30,000
Buildings and Equipment . . . . .	100,000	105,000
Goodwill . . . . .	75,000	75,000
	<u>\$370,000</u>	<u>\$410,000</u>
<i>Credits</i>		
Accounts Payable . . . . .	\$ 25,000	\$ 20,000
Notes Payable . . . . .	15,000	5,000
Accrued Liabilities . . . . .	5,000	5,000
Mortgage Bonds . . . . .	90,000	43,000
Capital Stock—Preferred (6%) . . . . .	50,000	100,000
Capital Stock—Common . . . . .	100,000	130,000
Surplus . . . . .	25,000	40,000
Reserve for Contingencies . . . . .	20,000	20,000
Reserve for Depreciation . . . . .	37,000	45,000
Reserve for Bad Debts . . . . .	3,000	2,000
	<u>\$370,000</u>	<u>\$410,000</u>

**M COMPANY**  
Income-Sheet Data

Sales and Other Revenues . . . . .	\$250,000	\$270,000
Operating Expenses . . . . .	219,000	246,000
Net Operating Revenue . . . . .	\$ 31,000	\$ 24,000
Interest and Dividends on Securities . . . . .	2,000	3,000
Total Net Income . . . . .	\$ 33,000	\$ 27,000
Interest Charges on Bonds and Notes . . . . .	6,000	4,500
Net Before Income Taxes . . . . .	\$ 27,000	\$ 22,500
Federal Income Tax . . . . .	4,000	3,000
Net Profits to Stockholders . . . . .	\$ 23,000	\$ 19,500
Preferred Dividends . . . . .	3,000	4,500
Net Profit to Common Stock . . . . .	\$ 20,000	\$ 15,000
Surplus, January 1 . . . . .	5,000	25,000
Surplus, December 31 . . . . .	<u>\$ 25,000</u>	<u>\$ 40,000</u>

evidently, it is assumed that the non-interest-bearing liabilities are in no way related to the marketable securities held. It should be noted that in order to calculate an earning rate on a basis which excludes marketable securities and the related income, and which involves deduction of income taxes, it would be necessary to revise the amount of taxes in the light of the assumed change in earnings, and this might be a rather troublesome task, especially if the income earned on securities includes exempt as well as taxable elements.

The exclusion of the goodwill items would represent another possible variation in the computation. All calculations and interpretations based on the data given are of course subject to the limitations inherent in the recorded figures. It should be remembered, too, that averages based on only two observations are not very reliable.

The proprietary profit rate for 1941 is found by applying net profits to stockholders, \$19,500, to the average of the net worth at the beginning of the period (\$195,000) and at December 31 (\$290,000), or \$242,500, which gives a rate of 8.04%, somewhat higher than the "all-capital" rate as first determined above. The rate earned on the equity of the common stock, assuming the preferred to be nonparticipating, is similarly found by applying the net to common stock, \$15,000, to the average amount of this equity for the year, \$167,500 (\$145,000 plus \$190,000, divided by 2), which gives a rate of 8.96%. The rate of return earned on the equity of the common stockholder is evidently increased somewhat, for the period under consideration, by the fact that a considerable amount of capital is furnished by creditors and preferred stockholders.

From the data given in the example the rate earned on all capital for 1940 can be determined only by assuming that the assets as shown at December 31 are a fair statement of the average assets employed. To estimate profit rates for 1940 with only the year-end balance sheet available similarly requires the assumptions that no changes in capital stock occurred during the year, and that the profits and dividends have accrued uniformly through the period. On this basis the average proprietary equity for 1940 is \$185,000 (equity at end of year, \$195,000, less \$10,000, which is one-half the retained profits), and the profit rate is  $23,000/185,000$ , or 12.43%. The average equity of the common stock for 1940 is similarly found to be \$135,000, and the rate earned thereon is  $20,000/135,000$ , or 14.81%.

**Turnovers.** Various turnover rates, usually requiring the use of data from both income sheet and balance sheet, are significant in internal analysis and administration and also in the interpretation of the general reports. The volume of revenue for the period divided by the average of the assets employed is a ratio used to express the periodic turnover of

the entire capital of the enterprise. For example, if revenues for the year total \$1,000,000 and the average assets employed amount to \$4,000,000, the annual turnover rate is 25%. This ratio is a rough measure of capital utilization, although it should be remembered that large sales in relation to investment do not demonstrate a high earning rate, and that the variation in normal capital turnover rates between different fields of business is marked. As indicated above, the amount of average assets cannot be ascertained by reference to a single balance sheet and all ratios of which recorded assets are a part are subject to the limitations inherent in such data. Closely related to this ratio are the turnover of working capital (sales to net working capital for the period), the turnover of current assets (sales to average current assets), and the turnover of plant (sales to average investment in plant).

Credit sales are often compared with the average of outstanding receivables. (For discussion see Chapter XVI of *Essentials of Accounting*.)

Inventory turnovers, either in physical or value terms, are important primarily in analysis for internal control. Merchandise turnover—"stock-turn"—is usually expressed as the relation between merchandise cost of sales and the average inventory. Some turnover calculations, including those for materials and for work in process in manufacturing, require the use of data not ordinarily present in the principal reports. (See discussion of this topic in Chapters XXIV and XXV of *Essentials of Accounting*.)

**Other Bistatement Ratios.** Many comparisons which make use of both balance-sheet and income-sheet data are possible, although the great majority have little or no significance as interpretive devices. Examples of special bistatement ratios which may be computed in particular circumstances are interest charges to total borrowings, rate of depreciation, depreciation and maintenance to net plant assets, and insurance cost to recorded amount of assets insured. Such ratios, evidently, cannot always be derived from the data presented in condensed financial reports.

**Standards of Comparison.** As suggested at various points above, financial relationships expressed as percentages or otherwise have little significance except as judged on the basis of appropriate standards. It is true, for example, that the nearer the equity ratio approaches 100 per cent, the stronger, in general, is the capital structure of the enterprise, but without some information as to what may be deemed to constitute an adequate percentage in the particular field it is impossible to form a discriminating opinion with respect to the condition of the specific enterprise. Without reference to standards, in other words, the composition of capital sources in most concerns cannot be interpreted as either unsatisfactory, adequate, or superior—to say nothing of finer gradations.

Similarly current position, operating ratio, earning rate, capital turnover, and other relationships as computed for the individual enterprise offer little assistance as interpretive devices unless coupled with adequate comparative data.

In developing standards as a basis for judging the affairs of the particular enterprise careful attention should be given to all available pertinent information on other enterprises, especially those in the same field. The principal sources of such information are the files and publications of trade associations, governmental departments, bureaus of research, and credit agencies, and the numerous special studies made by investment analysts, public accountants, and others. It is of course often difficult to find data which are fully comparable with those of the specific concern under consideration. Moreover, many of the compilations available have serious limitations owing to the inherent weaknesses in the underlying materials on which they are based, and must accordingly be used with caution.

The records of past performance in the enterprise constitute an important basis for judging conditions in the current period. In the larger concerns, further, where several plants or divisions are being operated, the data of the various units, brought together in comparative form, are useful in determining standards. Another source of standards, not to be taken too seriously but not to be despised, are the informal judgments of persons in the business whose impressions are based on long experience and critical observation.

**Limitations of Ratios.** The enthusiasm for judging the condition and prospects of an enterprise through the use of ratios has probably gone too far in some quarters. The suggestion, for example, that a valuable gauge of financial strength can be prepared through the amalgamation of a number of ratios, each weighted more or less arbitrarily, into a single index number implies that ratios have an intrinsic significance; it assumes that mere computation of ratios, if done with some arithmetic elaboration, can afford a basis for determining the standing of the enterprise. But ratios are not a satisfactory substitute for judgment. Calculation of ratios is nothing more than a means of focusing attention on relationships worthy of careful observation and study. In general ratios are clues, not bases for immediate conclusions. Even where deviations from accepted standards are disclosed either in single ratios or in ratio trends it is not wise to assume, without further investigation, that a condition peculiarly favorable or unfavorable is present. A high turnover rate, for example, which is usually deemed to be an indication of operating efficiency and strength, may be temporarily achieved by unwarranted price reductions, failure to maintain inventories, or other

unsound policies. Similarly a high current ratio, universally regarded as a sign of strong financial position, may result from unreasonable accumulation of particular assets and may actually indicate declining activity. In fact it is seldom if ever safe to make decisions with respect to the affairs of an enterprise, either in internal administration or in other connections, solely on the basis of an examination of ratios.

**Selection and Presentation of Ratios.** In employing ratios in the process of periodic analysis and interpretation, particularly in connection with the preparation and use of the principal financial statements, it must be remembered that comparatively few of the many possible computations have any considerable significance, and discrimination must accordingly be exercised in the selection of relationships to be emphasized. The calculation and presentation of an undigested array of ratios, as a feature of a report, is likely to promote obscurity rather than clarity and understanding. In the selection of ratios, further, consideration should be given to the special conditions of each situation, including the needs of the interested parties; there is no standard list of comparisons equally suited to all cases.

While ratios may in some circumstances be attached directly to the financial statements it is usually more helpful to present such material in the form of supplementary exhibits and discussion, as in this way the significance of the various relationships can be indicated. Wherever possible standards of comparison should be set forth and explanations of deviations offered. In some cases the trend of a particular ratio over a period of years is the important point to be emphasized. Display in graphic form may be helpful in this connection.

### QUESTIONS

1. List five general lines of attack which are useful in analyzing financial statements.
2. What are financial ratios? List and illustrate the principal classes.
3. What is the preferred form of the equity ratio? Indicate the general significance of this ratio.
4. Discuss the current ratio. What is meant by the "quick" ratio?
5. How should bonds maturing shortly be dealt with in the presentation of working capital position? Cash segregated for construction purposes?
6. Give several examples of minor balance-sheet ratios.
7. What is meant by the operating ratio? The percentage of "gross profit"? Give several examples of subordinate operating ratios.
8. Define precisely the two main measures of earning power, including explanation of the determination of both factors in the ratio in each case.
9. In connection with ascertaining the enterprise earning rate discuss the treatment of each of the following: (1) income taxes; (2) capital gains and losses; (3) idle plant; (4) non-interest-bearing liabilities.
10. What are profit rates? Dividend rates? "Differential" earning rates?



11. Give several examples of "turnovers."
12. Indicate the importance of standards in the use of ratios. What are the principal sources from which standards may be derived?
13. Under what circumstances might an increasing rate of merchandise turnover indicate an unsatisfactory condition? An exceptionally low rate of bad-debt losses? An increasing quick ratio?
14. "Ratios are clues, not bases for immediate conclusions." Explain.
15. Discuss the presentation of ratios.

## XXX

### STATEMENT OF FUNDS

**Analysis of Comparative Statements.** In Chapter I comparative statements were briefly discussed, and this type of reporting has been referred to several times in other connections. At this point special attention must be directed to ways and means of analyzing and utilizing comparative statements. Mere listing of comparative financial data is of little value to managers, investors, or other parties interested; the significant developments implicit in such data must be brought to light and emphasized if the available material is to be genuinely useful.

The first step in the interpretation of comparative statements is the computation and disclosure of the changes in the various component elements, and in presenting comparative data, as explained earlier, columns are often provided in which amounts of increase and decrease are listed. The extent and direction of the changes may be emphasized by determining and displaying the percentage which each element is of the corresponding figure for the base period (usually the first of the two or more periods under consideration). In a two-year comparative balance sheet, for example, if the amount of cash at the end of the earlier year is \$50,000, and the cash balance a year later totals \$60,000, the index number or percentage for the second year is 120. Another method of indicating changes is by showing the comparative data attaching to particular headings as percentages of some general base. For example, if amounts of sales in a given concern for 1940 and 1941 are \$500,000 and \$600,000, respectively, and the figures for selling expenses for the two years are \$50,000 and \$54,000, respectively, the comparative percentages (selling expense to sales) are 10 and 9; and examination of these percentages shows that although selling expense for 1941 exceeds by \$4,000 the amount of such expense for the preceding year, the increase is less than proportional to the growth in the volume of revenue.

The second step is the tracing of significant processes and developments in terms of the quantitative changes disclosed. As applied to the comparative balance sheet, this means a careful noting of related changes and an effort to appraise their importance, with the focus of attention upon working-capital position and long-run solvency. In the analysis

of the comparative income statement the matters of special interest are the trends of gross and net operating revenue, the relative movement of operating charges—in total and by principal divisions—the extent of and variations in nonoperating credits and deductions, and developments with respect to the disposition of earnings. By combining appropriate data drawn from both types of comparative reports the trend of earning power may be disclosed and special factors bearing upon this trend may be observed. A special line of inquiry concerns the application of earnings temporarily or permanently retained in the business. Throughout the process of interpreting comparative reports, of course, pertinent ratios should be calculated and discussed. The nature of the discussion report which brings together the results of a critical study of comparative statements is indicated by the illustration in Chapter XXXII.

**Nature of Funds Statement.** The so-called “statement of funds” is an important technical means of bringing to light underlying financial operations and movements—the ebb and flow of economic forces in terms of major elements and factors—which are not directly revealed in reports of the balance-sheet and income-sheet type, no matter how carefully prepared and arranged. This statement is used, in other words, to assemble in systematic form the essential effects and results of all transactions and operations for a given period—usually one year—upon the primary financial sinews of the enterprise. In particular it is designed to reflect the relation of the revenue stream to the cash or equivalent resources of the business and to display the composition and disposition of the amount of net income (or loss) in terms of such resources. It is not a statement of receipts and disbursements, but it focuses attention upon the funds aspect of the major activities. It endeavors to trace the entire flow of financing and operation, in the broadest sense, in so far as these processes contact the working-capital section of the business structure.

The meaning of the term “funds” as used here should be defined more definitely. Under a very liberal usage all financial elements, including the components of fixed investment, may be viewed as “funds”; under a very narrow usage only actual cash resources, including special deposits, deserve to be so designated. (The technical use of the term “fund” in governmental accounting has no bearing on the problem of analyzing comparative statements.) The definition adopted for the purpose of this discussion is something of a compromise. All factors comprised in the current position of the enterprise—all truly current assets and obligations—are considered as affecting “liquid” capital or funds; and the movement—ebb and flow—of funds for a period of time, accordingly, is

considered to be represented by the financial streams passing through the working-capital area.

The statement of funds is based upon the data of the balance sheet at the beginning of the period, the income report for the period, and the concluding balance sheet. Prepared without reference to the income sheet—a procedure which formerly received considerable support—the statement becomes nothing more than a balanced array of balance-sheet increases and decreases and has little interpretive value. With the essential data of the income sheet discriminatingly introduced, on the other hand, the result can undoubtedly be made definitely useful to both financial managers and investors.

The statement of funds is in a distinctly experimental stage in practice and no standard form has been developed. In general a “running-account” display of the income-statement type is preferable to a balanced report of so-called “sources” and “applications.” The goal to be achieved in this connection is an arrangement—a threading together—of the data of essential financial processes which shall be most meaningful in view of the conditions of the particular situation. This means that with respect to the point of departure, the degree of elaboration, the internal order, and the concluding or balancing element the report of funds may well vary in form between enterprises and between years in the same concern.

**Sources and Applications.** The basic sources of funds to carry on the financial operations of an enterprise are revenues (including all special incomes and profits), borrowings, and additional proprietary investment. Funds may also be obtained, in a more restricted sense, through reduction of working capital or disposition of plant or other capital assets. Occasionally funds are made available as a result of gifts or other types of “windfalls.” Similarly the available funds of an enterprise may be utilized in a given period to meet operating costs and taxes, pay interest and dividends, reduce liabilities, retire capital stock, or to expand current or other assets. Funds may also be consumed through sheer losses or—in rare cases—outright donations.

With respect to revenues as a source of funds it is important to recognize that operating charges absorb liquid resources in a given period only to the extent of outlays in such period—outlays either in the form of actual expenditures of cash and consumption of other current assets, or represented by the incurring of definite obligations which must be shortly liquidated. Charges to operation or to income representing estimated accrued depreciation, depletion, amortization of cost of patents and other intangibles—to note the principal examples—do not represent current commitments of funds; they are true costs in that they reflect the

assignment to current activities of appropriate portions of past expenditures but they do not in themselves measure absorption of liquid resources in the period in which charged. Accumulation of bond discount is another example of a charge which does not involve immediate absorption of funds. The volume of revenues, accordingly, need not be reduced by such charges in computing the amount of funds currently made available thereby for various purposes. This is an important point, particularly in explaining the fact of interest and dividend disbursements in excess of reported net revenue. Charges to revenue arising from a net decrease in inventories likewise do not reflect immediate utilization of purchasing power. Such charges do, however, measure the use of current resources and thus contribute to the picture of fund movements as defined above.

Similarly it is the stream of collections rather than the volume of revenue (including sales on a credit basis) which measures purchasing power immediately made available as a result of transactions with customers. Since, however, the amount of receivables is viewed as a liquid resource, a factor in working capital, the revenue account constitutes a reasonable gauge of the inflow of funds in the broad sense. The movement of current funds, to repeat, should not be identified with cash receipts and disbursements. Where there is no marked change in the amount of outstanding receivables in the period under review, it may be added, the revenue figure approximates the amount of actual collections.

**Change in Net Working Capital.** In the condensed statement of funds the change in net working capital is often included as a single element, the details being displayed in a separate schedule (or in a separate section of the funds statement itself). That is, the decrease or increase for the period in the amount by which current assets exceed current liabilities is treated as one definite source or application, respectively, of liquid funds. This procedure avoids cluttering the funds statement with the changes in the various components of working capital—the internal circulation—and usually results in a more intelligible and significant picture of the underlying developments than could otherwise be secured. On the other hand this treatment implies a degree of homogeneity of current assets not always found and follows the usual assumption—not always fully appropriate—that current liabilities should be attached definitely to current assets in financial interpretation. Where the circumstances indicate that such threading together of changes in current balances does not express the essential movement of funds in the clearest possible manner some other and more suitable arrangement—in which particular types of resources or obligations are separately displayed—should be worked out.

In the statement of funds as well as elsewhere the current receivables

should be reduced by the full amount of the allowance for uncollectibles and other offsets which have been established.

**Model Condensed Statement of Funds.** As a basis for further discussion of the content and form of the funds statement the outline shown on page 682 is offered. This outline, it should be recognized, is designed as a general framework and not as a form applicable precisely to a particular case. No company, evidently, would show concurrently both decrease and increase in net working capital. It would only be in rare cases, further, that sale of capital assets, bond and stock retirements, and investment in affiliated companies—to say nothing of funds acquired by gift and disbursed accordingly—would all be represented in the affairs of a particular company in a particular year. The titles used in an actual statement would of course be more specific and some details would be desirable at a number of points, even in a condensed statement. The notes appended are intended to be suggestive of technical explanations and supplementary data which may well accompany the statement of funds.

**Presentation of Income and Loss Data.** A number of questions raised by the foregoing outline form require specific attention. In the first place it would be possible to begin the statement with the amount of net profit after taxes and interest charges as shown by the income sheet, or even with the balance of profit after dividend appropriations. However, a form revealing the entire application of the revenue stream, as in the outline, is to be preferred. A variation would involve showing interest charges with dividend appropriations as a deduction from “funds available from operations and conversions.” The advantage of such a procedure would be that it would serve to bring out sharply the fact that other funds than those represented by net income may be available and may be used, in particular periods, to meet interest requirements. This point would have a special importance in utilities and other enterprises in which interest charges were a major factor.

Charges to earnings not representing current outlays are often explicitly shown in the body of the statement. This can readily be done by displaying net income after all deductions as shown by the income sheet and then adding to the net figure the amount of depreciation and other “noncash” charges.

Evidently the proper adjustments can be made precisely on the basis of financial reports only when the reports are so prepared that it is possible to isolate the desired amounts.

In the outlined form no specific provision is made for showing “wind-fall” gains and outright losses not reasonably attachable to earnings or to other sources of funds. In most cases unusual profits may be included

**M COMPANY**  
**Statement of Funds**  
**Year Ended December 31, 19\_\_**

<i>Net Sales and Other Earnings</i> <sup>(1)</sup>	<u>xxx</u>	
<i>Current Outlays for Expenses, Interest,</i> <sup>(2)</sup> <i>Taxes, and Other Deductions</i> <sup>(3)</sup>	<u>xxx</u>	
<i>Earnings Available before Dividends</i>	<u>xxx</u>	
<i>Disposition of Capital Assets—Net Proceeds</i> <sup>(4)</sup>	<u>xxx</u>	
<i>Less Nonliquid Receivables or Property Accepted</i> <sup>(5)</sup>	<u>xxx</u>	xxx
<i>Reduction of Net Working Capital (see schedule)</i>	<u>xxx</u>	
<i>Funds Available from Operations and Conversions</i>	<u>xxx</u>	
<i>Dividend Appropriations</i>	<u>xxx</u>	
<i>Balance of Funds from Operations and Conversions</i>	<u>xxx</u>	
<i>Long-Term Obligations Issued during Year—Net Proceeds</i> <sup>(6)</sup>	<u>xxx</u>	
<i>Less Amount Used or Deposited to Pay or Retire Long-Term Debt</i>	<u>xxx</u>	xxx
<i>Capital Stock Issued During Year—Net Proceeds</i> <sup>(7)</sup>	<u>xxx</u>	
<i>Less Cost of Stock Acquired or Redeemed</i> <sup>(8)</sup>	<u>xxx</u>	xxx
<i>Funds Acquired by Bequest or Gift</i>	<u>xxx</u>	
<i>Less Amount of Funds Utilized for Gifts and Donations</i>	<u>xxx</u>	xxx
<i>Funds Available for Expansion and Investment</i>	<u>xxx</u>	
<i>Cost of Plant Additions and Improvements</i>	<u>xxx</u>	
<i>Increase in Investment in Securities of Affiliates</i>	<u>xxx</u>	xxx
<i>Balance of Funds—Increase in Net Working Capital (see schedule)</i>	<u>xxx</u>	

<sup>(1)</sup> Net sales and all ancillary and special incomes and gains as shown by the income sheet exclusive of the amount of xxx, profit on sale of capital assets, which is reported under another heading.

<sup>(2)</sup> Not including accumulation of bond discount shown under interest charges in income sheet in the amount of xxx, as such accumulation is reflected in a fixed liability.

<sup>(3)</sup> All expenses and deductions appearing in accompanying income statement, other than dividends, exclusive of charges not involving current outlays as follows: depreciation, xxx; amortization of patents, xxx.

<sup>(4)</sup> Charges connected with these transactions, except where included under "current outlays" above, have been deducted.

<sup>(5)</sup> In the sale of real estate a mortgage was taken back in the amount of xxx.

<sup>(6)</sup> Par of debenture bonds issued, xxx; gross proceeds, xxx; commissions and other charges, xxx.

<sup>(7)</sup> Commissions and other costs attaching to this issue, xxx, are excluded.

<sup>(8)</sup> xxx shares of preferred stock acquired by call or market purchase during year at average cost of xxx per share.

—for purposes of the statement of funds—in earnings, but a special heading can readily be introduced if this seems desirable. Losses which do not represent dissipation of fund resources should be omitted. Losses measured by current outlays may be shown either as charges to earnings or as a special "application" of available funds.

Preferably the effects of all revaluations, including pricing of inventories and other elements of working capital on other bases than cost, should be excluded from the statement of funds.

**Treatment of Capital Transactions.** In dealing with proceeds arising from sale and other disposition of plant or other capital assets care must be taken to avoid confusion and misstatement. Where such sale or disposition involves a profit the amount of the proceeds representing the profit must of course be reported as available funds only once. That is, if such profit is included in earnings it must be excluded from the statement of the proceeds. Where a loss is involved the proper treatment is to exclude such loss from the "current outlays," as losses representing net book value of capital assets disposed of in excess of net proceeds do not constitute in themselves a drain on current liquid funds. The entire amount actually received in cash or other current form, after deduction of commission and other applicable charges, may then be reported under the appropriate heading. The amount of nonliquid property—if any—received in exchange, together with that portion of the "proceeds" represented by long-term obligations of the buyer, should either be excluded completely from the statement of funds or treated as a contra item in the model form. It is recognized that ordinary balance sheets and income statements do not disclose the details of transactions involving capital assets and that additional data are accordingly required if the precise effect upon funds is to be reported as indicated in the model form.

Where funds received through bond or stock issues are not applied directly to payment or retirement of outstanding security issues, or to building up accumulations of cash or other liquid resources dedicated to such payment or retirement, the amount thereof is available for plant expansion or other purposes and should be reported accordingly. Deposits in sinking funds may, of course, arise from operations and conversions rather than from new security issues and under such circumstances the arrangement of the funds statement should reflect this condition. Sometimes proceeds of bonds are applied to stock retirement, or proceeds from stock issues are employed to retire long-term debt. Often a showing of funds received from security issues in total, followed by a disclosure of the way in which such total is applied, is a desirable arrangement of data. Where long-term debt or capital stock is retired (or is purchased without actual cancellation) and the funds employed are secured otherwise than through new security issues the amount utilized for this purpose would be shown as an application of funds available after other requirements are met rather than as a contra to particular sources. Pro-rata distributions to stockholders in the form of liquidating dividends are a related type of fund application.

The increase in plant account as shown by the comparative balance sheet is of course the net resultant of all additions and all eliminations,



and hence the actual amount of funds currently absorbed in this direction can be shown in the funds statement only where an analysis of the property accounts is available. As a rule the total of the charges to fixed assets during the period is the figure to be presented as the application of funds to plant. Charges representing revaluations should be excluded, however, as appreciation is not to be confused with current expenditures on account of plant. In the case of exchanges, moreover, the charges matched by credits to fixed assets given in exchange should not be considered. There is also a question of the propriety of treating additions to plant property which are covered by long-term liabilities issued or assumed in connection with the purchase of such property as an application of current funds, the liabilities in turn being separately displayed as a funds source. The alternative is to show the amount of the liabilities as a contra to the figure representing cost of the property acquired.

It is not always easy to determine which elements should be completely canceled and omitted and which should be reported as contras. Cancellation and matching, evidently, should not be carried to extremes. What is desired is the inclusion of all data, and the disclosure of all threads of association, which will help to make the analysis intelligible and significant.

In this connection the relation to the funds statement of the various classes of credits to plant account should be more definitely indicated. Credits covering retirements to the extent offset by charges to the allowance for depreciation have no bearing on either sources or application of funds and hence should be excluded from the funds statement. Credits matched by charges to liquid resources are a source of funds and should be so reported. As explained above, where credits to fixed property are accompanied by losses the ideal treatment involves excluding the amount of the loss from both sources and applications.

**Transactions Not Affecting Funds Statement.** It is important to realize that not all transactions involve movement of funds, even in the broadest sense of the term, and it is necessary to bear this point in mind in utilizing the data of comparative balance sheets in making up the funds statement. Security exchanges and conversions are usually in this class. Direct exchanges of one kind of bonds for another, or of bonds for stock, or of one class of stock for another, are not transactions which either provide or utilize, currently, the funds of the business. The stock dividend, or any other transaction representing nothing more than the capitalization of surplus, is another example. Similarly the appropriation of surplus under special heads, or return of such appropriations to general surplus, does not affect funds.

As suggested above, writing up plant assets or any other kind of

property does not represent fund utilization and a write-down, similarly, does not constitute a provision of fund resources. Care should always be taken, accordingly, to exclude the effects of such adjustments, as otherwise serious distortion of the funds statement may result.

The principal other type of transaction not affecting funds, also referred to above, is the exchange of fixed assets for other nonliquid property.

**Preparation of Funds Statement Illustrated.** The following data are adapted from the financial reports of a corporation which may be called the Wye Co.:

Condensed Balance-Sheet Data  
As of December 31

<i>Debits</i>	<i>1940</i>	<i>1941</i>
Cash . . . . .	\$ 122,000	\$ 93,000
Receivables . . . . .	293,000	294,000
Inventories . . . . .	860,000	888,000
Prepayments . . . . .	26,000	28,000
Land . . . . .	734,000	884,000
Buildings and Equipment . . . . .	2,180,000	2,120,000
Marketable Securities . . . . .	.....	65,000
Real Estate Bonds . . . . .	55,000	25,000
Investment in Hart Co. Stock . . . . .	.....	640,000
Goodwill . . . . .	25,000	25,000
Bond Discount . . . . .	.....	5,000
Organization Costs . . . . .	5,000	10,000
	<u>\$4,300,000</u>	<u>\$5,077,000</u>

*Credits*

Current Liabilities . . . . .	\$ 490,000	\$ 511,000
Bonds Outstanding—First Mortgage . . . . .	15,000	350,000
Reserve for Depreciation . . . . .	713,000	883,000
Reserve for Uncollectibles . . . . .	25,000	30,000
Earned Surplus . . . . .	930,000	1,046,000
Appreciation Surplus . . . . .	1,325,000	1,280,000
Donated Surplus . . . . .	252,000	402,000
Capital Stock—Preferred . . . . .	200,000	.....
Capital Stock—Common . . . . .	300,000	525,000
Reserve for Contingencies . . . . .	50,000	50,000
	<u>* \$4,300,000</u>	<u>\$5,077,000</u>

Condensed Income-Sheet Data  
Year Ended December 31, 1941

Net Sales . . . . .	\$2,400,000
Cost of Sales (including depreciation) . . . . .	2,345,000
Interest and Rentals Earned . . . . .	7,000
Taxes . . . . .	13,000
Interest Charges . . . . .	15,000
Dividends on Hart Co. Stock . . . . .	52,000
Dividends on Preferred Stock . . . . .	15,000
Realized Appreciation . . . . .	45,000

*Supplementary Information*

(1) All assets are reported on a cost basis, subject to accrued depreciation and estimated uncollectibles, except land, buildings and equipment, and goodwill.

(2) Additions to buildings and equipment during 1941, at cost, amount to \$10,000.

(3) Real-estate bonds were collected in cash during year in the amount of \$30,000.

(4) Par was received for all mortgage bonds issued during the year except a block amounting to \$100,000, par, which was sold on December 31, 1941.

(5) The increase in organization costs represents actual cash, or equivalent, outlays made in connection with issue of securities during year.

(6) Charges to depreciation reserve during 1941, arising in connection with retirement and sale of equipment, total \$30,000; credits amount to \$200,000.

(7) The increase in donated surplus during 1941 results from receipt of property as a gift to Company.

(8) Cost of sales includes net loss on retirement and sale of equipment, as of January 1, 1941, \$35,000; the proceeds of this sale, in cash, totaled \$5,000.

(9) "Dividends on preferred stock" include a premium of \$1,000, paid upon retirement of this stock.

The statement of funds on this page is based upon the above information. This report shows, to state the essential developments very briefly, that funds were made available from operations and conversions on the one hand and new security issues on the other sufficient to leave, after retirement of preferred stock, nearly \$700,000 for investment or retention in working capital, and that the major portion of this amount—\$640,000—was utilized in acquiring Hart Co. stock.

## WYE COMPANY

## Statement of Funds

Year Ended December 31, 1941

Net Sales and Other Earnings . . . . .			\$2,459,000
Current Outlays for Expenses, Interest, and Taxes . . . . .			2,138,000
Earnings Available before Dividends . . . . .			\$ 321,000
Disposition of Capital Assets—Net Proceeds:			
Sale of Equipment . . . . .	\$ 5,000		
Collection of Real Estate Bonds . . . . .	30,000		35,000
Funds Available from Operations and Conversions . . . . .			\$ 356,000
Dividend Charges . . . . .			14,000
Balance of Funds from Operations and Conversions . . . . .			\$ 342,000
Bonds Issued during Year—Proceeds . . . . .	\$330,000		
Common Stock Issued during Year—Proceeds . . . . .	225,000	\$555,000	
Cost of Retiring Preferred Stock . . . . .	\$201,000		
Outlay for Fees, Commissions, etc. . . . .	5,000	206,000	349,000
Funds Available for Expansion and Investment . . . . .			\$ 691,000
Cost of Additions to Buildings and Equipment . . . . .		\$ 10,000	
Amount Invested in Hart Co. Stock . . . . .		640,000	650,000
Increase in Net Working Capital (see schedule) . . . . .			\$ 41,000

WYE COMPANY  
Comparative Schedule of Working Capital  
Years Ended December 31

	1940	1941
Cash . . . . .	\$ 122,000	\$ 93,000
Marketable Securities . . . . .	.....	65,000
Receivables (net book value) . . . . .	268,000	264,000
Inventories . . . . .	860,000	888,000
Prepayments . . . . .	26,000	28,000
Total Current Assets . . . . .	<u>\$1,276,000</u>	<u>\$1,338,000</u>
Current Liabilities . . . . .	490,000	511,000
Net Working Capital . . . . .	<u>\$ 786,000</u>	<u>\$ 827,000</u>
Increase in Net Working Capital (see statement of funds) . . . . .	41,000	
	<u><u>\$ 827,000</u></u>	

To make the derivation of the figures used in the funds statement prepared in this case entirely clear a few explanations are in order. The figure for "net sales and other earnings" is the sum of the amounts given in the income-sheet data under "net sales," "interest and rentals earned," and "dividends on Hart Co. stock." The total of "current outlays . . ." is cost of sales as reported, \$2,345,000, plus interest of \$15,000 and taxes, \$13,000, and less the sum of the depreciation charge for the year, \$200,000, and the loss on equipment retired, \$35,000. The charge for depreciation is assumed to be the equivalent of the credit to the reserve as given. The entire effect of the retirement of equipment can be reconstructed in the following entries:

Cash . . . . .	\$ 5,000	
Reserve for Depreciation . . . . .	30,000	
Loss on Retirements . . . . .	35,000	
Buildings and Equipment . . . . .		\$70,000

The "dividend charges" total \$14,000 rather than \$15,000 as shown in the income-sheet data, the premium on preferred stock retirement being shown later as a part of the total cost of such retirement. The proceeds of the bonds issued amount to \$330,000, par less the discount item of \$5,000. Since this discount applies to bonds issued as of the end of the year it is assumed that no accumulation of discount has been included in interest charges.

The increase in donated surplus, accompanied by an equal change in the land account, has no effect upon the movement of funds and hence is ignored in the statement. Similarly the transfer from "appreciation surplus" to "earned surplus" has no bearing upon funds either made available or applied.

The example given is not presented as a typical business situation but rather as an illustration which includes a considerable range of conditions important in connection with the statement of funds.

**Funds Work Sheet.** Particularly where the underlying data are extensive a funds work sheet is a useful device in drawing together the material needed for the statement and in promoting accuracy in the handling of the various adjustments. The illustration on pages 690-691 shows the use of a work sheet in the preparation of the statement of funds for the Wye Co., discussed above. In this form of work sheet the comparative balance-sheet data are included in the first two columns, and the increases and decreases for the period under review are listed as debits and credits in the second pair of columns. In the lower section of the third and fourth columns, further, are listed the necessary data from the income sheet, in debit and credit form, with the balancing adjustment of surplus. The form provides six additional columns for adjustments, working-capital changes, and the essential resulting material for the funds statement. Additional titles are added at the bottom of the sheet as needed.

The adjustment columns are used for the following more or less distinct purposes: (1) to cancel changes having no effect upon the movement of funds; (2) to modify particular elements so as to disclose the actual effect upon funds; (3) to transfer items to new headings under which funds data may be effectively assembled. The entries labeled (1) in the illustration which eliminate the changes resulting from the recognition of donated land belong to the first class. The elimination of the effect of the transfer of appreciation surplus to earned surplus—(6)—is a similar type of adjustment. Entries labeled (3) and (5) may also be viewed as cancellation entries except to the extent of the proceeds of \$5,000 disclosed as a source of funds and displayed under a new heading for that purpose. Examples of the second class are found in entries (4) and (7). Entries (2), (8), and (9) represent adjustments which may be placed in the third group listed above. The entire elimination of the increase in earned surplus in the balance-sheet data as a source of funds, it should be noted, is necessary in view of the fact that all funds made available by earnings are being reported under another title.

To what extent should additional headings be appended to the data drawn from statements? In answer it may be said that new captions should be attached in so far as this is necessary in clearly displaying the essential elements of the funds statement. In the illustration the proceeds of bonds issued and the cost of retiring preferred stock, after adjustment, are shown under the corresponding balance-sheet titles; new headings might, of course, have been provided. On the other hand the

amount representing cost of additions to buildings and equipment is transferred to a supplementary heading instead of being retained on the original line. It is evident that many variations in procedure are possible in a given case.

The last four columns represent a sorting out of the net balances, line by line, of the "changes" and "adjustments" columns taken together. In this connection an extension of the work sheet to include two columns showing these net balances or "adjusted changes" explicitly may be expedient in some cases. The statement of funds itself is evidently based upon the material compiled in the last two columns.

**Uses and Limitations of Funds Statement.** The statement of funds should be viewed as an analytical device supplementary to the primary financial statements. Its use assumes that the income sheet and balance sheet, however well prepared, do not in themselves clearly set forth the origin and disposition of the funds which were made available to the management during the period. Thus the funds statement includes an explanation of the underlying administration of revenues; it also endeavors to explain the handling of funds arising from new financing. It is designed particularly to throw light on such critical questions as: What has become of profits? How have dividends been paid in the absence of profits? How have losses been borne? On the basis of the regular statements alone the stockholders often have difficulty in finding a convincing answer to such questions, and even the management itself may not see the situation any too clearly. The statement of funds, carefully constructed and presented, can be of real service here.

That the statement of funds depends upon the use of assumptions which are incapable of objective verification must be admitted. There is often no way of demonstrating that the funds arising from a particular source are expended upon a particular object. To a considerable degree all funds become merged as they appear and commitments are made from the common pool. Moreover, even where actual physical segregation of money received occurs, and expenditures or applications can be literally traced, it does not follow that a matching of the elements in the statement has any particular justification from the standpoint of the disclosure of truly significant movements for the period under review. It may be argued, with some force, that the manner in which particular batches of dollars are spent is a matter of indifference, since substitution is possible all along the line. And in view of this fact, it may be contended, the statement of funds may be arranged in an almost unlimited number of ways, no one of which is any better than another and no one of which has any special significance.

The somewhat elastic character of the statement of funds may be

# WYE COMPANY

Funds Work Sheet, Year Ended December 31, 1941

	Dec. 31, 1940	Dec. 31, 1941	Changes		Adjustments		Working Capital		Funds	
			Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
<i>Balance-Sheet Debits</i>										
Cash	\$ 122,000	\$ 93,000		\$ 29,000				\$29,000		
Receivables	293,000	294,000	\$ 1,000				\$ 1,000			
Inventories	860,000	838,000	28,000				28,000			
Prepayments	26,000	28,000	2,000				2,000			
Land	734,000	884,000	150,000			\$ 150,000 <sup>1</sup>				
Buildings and Equipment	2,180,000	2,120,000		60,000	\$ 70,000 <sup>2</sup>	10,000 <sup>2</sup>	65,000			
Marketable Securities		65,000	65,000							
Real Estate Bonds	55,000	25,000		30,000					\$ 640,000	\$ 30,000
Investment in Hart Stock		640,000	640,000							
Goodwill	25,000	25,000								
Bond Discount		5,000	5,000			5,000 <sup>4</sup>			5,000	
Organization Costs	5,000	10,000	5,000							
	<u>\$4,300,000</u>	<u>\$5,077,000</u>								
<i>Balance-Sheet Credits</i>										
Current Liabilities	\$ 490,000	\$ 511,000		21,000				21,000		
Bonds Outstanding	15,000	350,000		335,000						330,000
Reserve for Depreciation	713,000	883,000		170,000						
Reserve for Uncollectibles	25,000	30,000		5,000	5,000 <sup>4</sup>	30,000 <sup>3</sup>				
Earned Surplus	930,000	1,046,000		116,000				5,000		
Appreciation Surplus	1,325,000	1,280,000	45,000			116,000 <sup>6</sup>				
Donated Surplus	252,000	402,000		150,000		150,000 <sup>2</sup>				
Capital Stock—Preferred	200,000		200,000			1,000 <sup>7</sup>			201,000	
Capital Stock—Common	300,000	525,000		225,000						225,000
Reserve for Contingencies	50,000	50,000								
	<u>\$4,300,000</u>	<u>\$5,077,000</u>	<u>\$1,141,000</u>	<u>\$1,141,000</u>						

*Income-Sheet Data, 1941*

Net Sales  
Cost of Sales (including  
depreciation)

Interest and Rentals Earned  
Taxes  
Interest Charges  
Dividends on Hart Stock  
Dividends on Preferred Stock  
Profit Carried to Surplus

Net Sales and Other Earnings  
Current Outlays for Expenses,  
Interest, and Taxes  
Proceeds from Sale of  
Equipment  
Additions to Buildings and  
Equipment  
Increase in Net Working  
Capital

<i>Dr.</i>	<i>Cr.</i>						
\$2,345,000	\$2,400,000	2,400,000 <sup>8</sup>					
			35,000 <sup>8</sup>				
			200,000 <sup>8</sup>				
			2,110,000 <sup>8</sup>				
	7,000	7,000 <sup>8</sup>					
13,000			13,000 <sup>9</sup>				
15,000			15,000 <sup>9</sup>				
	52,000	52,000 <sup>8</sup>					
15,000			1,000 <sup>7</sup>				
71,000			71,000 <sup>8</sup>				
						14,000	
\$2,459,000	\$2,459,000						
							2,459,000
						2,138,000	
							5,000
						10,000	
						41,000	
						\$96,000	
						\$3,049,000	
							\$3,049,000



admitted without acceptance of the conclusion that all arrangements of data are on a level or that the device has no value. Business financial affairs do have an acknowledged pattern—a pattern based in part upon legal institutions and arrangements and in part upon managerial experience—and there is every reason to believe that it is possible to make an analysis which conforms to, and delineates, the essential structure of financial operations as exemplified in the particular case.

The statement of funds need not be thought of as an equally important device for all concerns or for all periods. Where there is no new financing, no retirement of securities, and no major net movements in working capital the funds analysis will add little to the showing made evident by the regular statements.

Preparation of a complete and well-arranged statement of funds, it should be noted once more, is hardly possible unless there are available, in addition to condensed financial statements, supplementary data covering plant additions and retirements, depreciation and amortization, costs of financing, and any other necessary details.

**Surplus Utilization.** Allied to the line of inquiry represented by the statement of funds is an analysis of the composition of accumulated profits in terms of the manner in which they have been utilized in the business. In general, of course, the surplus account does not attach to or reflect ownership of particular resources; it measures a portion of the proprietary equity and is embodied in a cross section of all assets. At the same time it is not unreasonable to consider surplus responsible for particular developments which accompany the growth of undistributed earnings.

In attempting to ascertain how undivided profits have been utilized certain assumptions as to the relationships between major asset and equity items are appropriate. In the first place the current assets may be deemed to have been provided by short-term creditors to the extent of the current liabilities. The amount of net working capital, in turn, is usually considered to have been contributed by the proprietary equity, in the form of surplus as well as original capital, rather than by long-term creditors. The noncurrent assets, similarly, are accounted for, first, by the fixed liabilities, and, second, by capital and surplus. The next step is the apportionment of net working capital and the excess of noncurrent assets over the related liabilities between capital and undivided profits. A possible and on the whole a reasonable basis for the division is found in the relative amounts of capital and surplus. That is, if surplus, for example, is forty per cent of the total proprietary equity it may be assumed that this factor is responsible for forty per cent of net working capital and forty per cent of the residual amount of noncurrent resources.

The relative changes during the period of accumulation in the two areas in which the proprietary equity has been assumed to lodge furnish another approach. If, for example, the total of noncurrent assets has not been expanded materially as surplus has been accumulated, and the growth has been largely or entirely in net working capital, it may be more reasonable to assume that surplus inheres primarily in the current resources. Similarly if net working capital has remained substantially unchanged while plant or other noncurrent resources have increased, the conclusion may be reached that surplus has been utilized in the acquisition of fixed assets. Additional stock may of course be issued from time to time as surplus is accumulating, and where the funds so secured are definitely committed in certain directions the interpretation of the application of surplus should be appropriately modified. A special situation arises where profit funds are utilized to retire liabilities. In general it is reasonable to assume that surplus applied to reduce current liabilities inheres in and attaches to working capital, and that surplus applied to payment of fixed liabilities inheres in the related resources.

To what extent is the surplus account invested in cash, inventories, and other particular assets? It is difficult to answer such questions in any effective way. However, once the amount of surplus assignable to net working capital has been determined, such amount may be spread over the various current assets on either of the two bases suggested above. Surplus may be assumed to be present in cash form, for example, to the extent of a fraction of the total surplus inhering in working capital which is represented by the percentage of cash to total current assets. Or where the changes in component current assets are not proportionate the amount of surplus accumulated as cash, for example, may be assumed to be that fraction of the surplus assignable to working capital which is represented by the percentage of the increase in cash during the period of surplus accumulation to the total increase in all current assets. By similar calculations the amount of surplus assumed to attach to noncurrent assets may be assigned to the particular classes of assets in this territory.

Unrealized surplus arising from revaluations resides in the assets which have been revalued.

A report of earned surplus analysis along the lines indicated might be set up somewhat as shown in the schedule on page 694.

To a report of this character might be appended a schedule of surplus accounts and a showing of the amount of surplus unappropriated. See discussion of surplus reservations in Chapter XXVI. The surplus analysis, to be most helpful, should be in comparative form. It should be emphasized that a careful study of surplus composition based on the

**M COMPANY**  
**Composition of Earned Surplus**  
**December 31, 19—**

<i>Surplus in Working Capital—</i>			
In Cash and Marketable Securities . . . . .	xxx		
In Other Current Assets . . . . .	xxx	xxx	
<i>Surplus Invested in Fixed Capital—</i>			
In Securities of Affiliated Companies . . . . .	xxx		
In Plant Additions and Improvements . . . . .	xxx		
In Other Assets . . . . .	xxx	xxx	
<i>Total of Earned Surplus Accounts, Appropriated and Unappropriated . . . . .</i>			<u>xxx</u>

financial reports is more significant than a listing of surplus appropriations as shown by the ledger, especially where such appropriations are set up by the financial management in the usual hit-and-miss fashion. Further, it is to be doubted if it is expedient to attempt to reflect in the ledger any implied classification of surplus in terms of utilization; at the best such a classification is very hypothetical.

The type of surplus analysis under discussion here should not be confused with the conventional surplus schedule emphasizing the origins of surplus and the various adjustments made during a given period.

### QUESTIONS

1. Illustrate the use of percentages in interpreting comparative statements.
2. What is the "statement of funds"? Define the use of the term "funds" in this connection. What form is most suitable for this statement?
3. List the principal sources and applications of funds.
4. Give examples of proper charges to operation and to income which do not represent, currently, a utilization of funds.
5. How is the working-capital picture usually handled in preparing the statement of funds?
6. Discuss and illustrate the relation of changes in plant accounts to the funds statement.
7. How should each of the following be dealt with in the statement of funds: (1) appreciation; (2) "realized" appreciation; (3) loss on sale of assets; (4) discount on new bond issue; (5) periodic accumulation of bond discount; (6) stock dividends; (7) increase in allowance for bad debts; (8) increase in reserve for contingencies; (9) commissions paid in connection with security issue; (10) long-term receivables acquired in connection with sale of plant; (11) issue of stock to bondholders exercising a conversion privilege.
8. Describe the funds work sheet. What are the purposes of the adjusting entries on such sheets? Illustrate each main class of adjustment.
9. "All of the many possible arrangements of the data of funds are equally valid; and no particular arrangement has much interpretive value." Explain and comment.
10. Discuss the utilization of surplus in terms of composition of assets.

## XXXI

### DISCUSSION STATEMENTS—GRAPHIC PRESENTATION

**Development of Discussion Statements.** The discussion statement may be viewed as an outgrowth of the use of notes and comments in connection with the technical financial exhibits. This type of statement, in its most complete form, consists of a systematic account or narrative of past operations, present financial position, and immediate outlook. With the emphasis on discussion, the tabular presentations of income- and balance-sheet data are relegated to the position of reference material. The annual reports to stockholders of many corporations are illustrative of the drift toward discussion and explanation, rather than columnar sheets and schedules, as the primary feature. Occasionally one finds an example of a report from which technical exhibits have been entirely eliminated.

Discussion is essential to effective interpretation, especially in connection with comparative reporting. The standard form of comparative report, in fact, might well consist of a careful exposition of the results of an analysis of the available data, with the condensed balance-sheet and income-sheet schedules attached as source material. In this connection it should be pointed out that the importance of arrangement and elaboration as such in the compilations of underlying figures is minimized by the use of the discussion type of report.

The discussion statement, with its elastic, nontechnical form, is a very helpful device and its use should be extended by accountants. At the same time it is not reasonable to assume that this type of report, however fully developed, can entirely supplant the more conventional statements and schedules.

**Combined Explanatory and Technical Statement.** For some years the accountants of a number of corporations have been experimenting with financial statements in which explanation and comment are introduced within the general framework of the technical form of exhibit. The results of these efforts range from the use of explanatory insertions—from one sentence to a paragraph in length—following each item of the regular statements to a presentation in which only the bare skeleton of the technical structure is retained. Canada Dry Ginger Ale, Inc., for exam-

## How We Stood on December 31, 1939

Following the custom established last year, wherein the Financial Statements were presented in a more descriptive manner, and in answer to numerous requests that this practice be continued, there is submitted herewith data for 1939. The Balance Sheet is simply a statement which shows what is owned; what is owed; and the difference represents the net worth. The values on the following statement have been divided by the average number of employees (28,099) to show also the investment per employee.

	INVESTMENT PER EMPLOYEE
<b>WE OWNED (Assets)</b>	
<b>CASH</b> —In banks and on hand available to pay for milk, payroll, supplies, freight and other services. It is sometimes necessary during the year to borrow additional funds from banks to pay for these items. The funds on hand are only sufficient for about one month's average operations, since at certain seasons more cash is required for inventories and receivables.....	\$ 20,291,907 \$ 722
<b>MARKETABLE SECURITIES</b> —Including substantial amounts of United States and Canadian government bonds which can be sold to provide additional cash or are on deposit with various governmental bodies to guarantee compliance with their milk control laws, workmen's compensation acts, etc. ....	5,411,811 193
<b>RECEIVABLES</b> —Money to be received by us from customers and others. This represents about 25 days' sales, most of which was collected currently in January .....	12,236,450 435
<b>INVENTORIES</b> —Stocks of finished goods, raw materials and goods in process, in plants and warehouses .....	17,514,226 623
<b>MISCELLANEOUS ASSETS</b> —Consisting principally of mortgages received from sales of properties and loans to farmers to purchase cattle, collection of which will extend beyond the current year and therefore are not included in current receivables above .....	2,545,870 91
<b>LAND, BUILDINGS and EQUIPMENT</b> —Plants in which our employees work; also machinery, processing and delivery equipment, fixtures, etc., used in our operations; after deducting the allowance for accumulated wear and tear to date (which is the depreciation reserve) .....	66,813,239 2,378
<b>PREPAID ITEMS</b> —Including prepaid taxes, rents, etc. ....	901,429 32
<b>TRADE-MARKS, PATENTS and GOOD-WILL</b> —For which the Company has expended millions in advertising and research, but which for conservative purposes is carried at this nominal amount .....	1
<b>TOTAL OF WHAT WE OWNED (Assets)</b> .....	<u>\$125,714,933</u>
	<u>\$4,474</u>

# **WE OWED (Liabilities)**

**CURRENT LIABILITIES**—Including bills for milk, materials, supplies and services purchased, principally in December, but not due for payment until January. This also includes provision for commissions and payrolls for the last part of the month and items on which bills have not been rendered, such as taxes and other miscellaneous expenses .....

\$16,251,163

*(It will be noted that cash as shown above was more than sufficient to cover all these current liabilities at the end of the year)*

**NON-CURRENT LIABILITIES**—Includes liabilities not payable within the next twelve months and deferred income items, such as rent, received in advance of the date when due and therefore not part of income for the year.....

189,044

**TOTAL OF WHAT WE OWED (Liabilities) .....**

16,440,207

# **STOCKHOLDERS' FUNDS and RESERVES**

Represented by the difference between total Assets and total Liabilities as follows:

Amounts which have been retained in Reserves for contingencies that may arise and for other operating purposes .....

\$11,619,692

From Stockholders, who own the business and have invested in the Capital Stock and Capital Surplus .....

79,833,697

From Stockholders, who have left a part of past earnings in the business in order to increase the earnings on their investment, as shown by the Earned Surplus Account .....

17,821,337

**TOTAL STOCKHOLDERS' FUNDS and RESERVES .....**

\$109,274,726

## *The Results of 1939 Activities*

The Company's Statement of Net Income, following last year's custom, also is presented below in a more descriptive manner. While the Balance Sheet shows how we stood on the last day of the year, the Income Statement shows the results for the full year's operations. The relation of the principal items to the sales dollar is expressed in percentages of the latter. Attention is directed to the large percentage which the total amount paid for dairy products, payroll, and taxes bears to the total sales dollar.

PER CENT  
OF SALES  
DOLLAR

### RECEIPTS:

SALES—Amount charged our customers for products sold .....	\$208,789,250	100. %
OTHER INCOME—Including interest on marketable securities and after deducting interest paid on drivers' deposits, etc. ....	<u>490,891</u>	
TOTAL .....	<u>\$209,280,141</u>	

### DISPOSITION:

TO FARMERS—Paid for milk, cream, butter, cheese, etc. ....	\$ 87,753,092	42.0%
PAYROLL—Employees were paid in wages and salaries .....	51,380,063	24.6%
TAXES—To Federal, State, local and foreign governments .....	<u>6,720,632</u>	3.3%
<i>(This amount for taxes is about 84% of the Net Income for the year)</i>		

\* 69.9%

TOTAL DAIRY PRODUCTS, WAGES AND TAXES..... \$145,853,787

\*This 69.9% is for all combined operations including evaporated milk, dry milk, ice cream, etc. as well as fluid milk. As to those districts conducting a fluid milk business only, the ratio of these costs to the sales dollar is higher, being about 78%.

**COSTS AND EXPENSES OF OPERATIONS**—Paid suppliers for bottles, containers, packing materials, coal, oil, gasoline, feed, sugar, tin plate and other materials; and others for services such as freight, rent, light, power, telephone, telegraph, advertising, repairs and other items, after deducting miscellaneous operating income .....

23.3%

49,220,324

**DEPRECIATION**—This year's proportion of the amount necessary to provide for the eventual replacement of buildings, machinery, vehicles and equipment, due to wear and tear in the Company's operations.....

3.0%

6,226,193

201,300,304

TOTAL OF ABOVE COSTS AND EXPENSES .....

3.8%

\$ 7,979,837

**NET INCOME**—Balance available for STOCKHOLDERS .....

This represents a return on sales of 3.8%. After payment of dividends of \$6,155,385 to Stockholders, the balance of Net Income was left in the business and thus strengthens the Company's financial condition.



ple, has for some time followed the practice of introducing informal comment throughout the regular statements. In a consolidated balance sheet of this concern, to illustrate, the following comment is found after the general heading "current assets": "This group comprises cash and items which in the ordinary course of business are convertible into cash in time to meet maturing obligations." After "surplus" appears this explanation: "This represents the accumulated earnings of the companies after deducting dividends and all other charges." Recently the Borden Company has adopted the practice of presenting descriptive financial statements in addition to exhibits of the conventional type. The statements shown on pages 696-699 are reproduced from the 1939 report of this company.

A closely related form of presentation is that in which the discussion is separated from the statements proper but is presented in numbered paragraphs corresponding to numbered items appearing in the statements. Yale & Towne Manufacturing Co. is one corporation which makes use of this device.

**Income-Sheet Discussion.** The following hypothetical example will serve to suggest the character of the analytical income report which emphasizes comparative data:

#### M COMPANY

##### Income Analysis, Year 1941

As shown by the attached comparative data the total revenue for the year was \$960,000, an increase of just 20% over the net sales of 1940. Selling prices for 1941, however, averaged about 10% higher than in the preceding year, and the increase in the physical volume of business was accordingly measured by sales of around \$80,000, in terms of current prices. The increase in operating costs, unfortunately, was more marked than the growth of revenue. Manufacturing cost increased 25% to \$600,000 and total operating charges amounted to \$770,000, an increase of \$150,000 (over 24%). In other words the operating ratio, which stood at 77.5% for 1940, has risen to 80.2% in 1941. This unfavorable development is primarily due to increasing taxes and the comparatively rapid advance in labor costs, discussed in some detail elsewhere.

The net operating revenue of \$190,000 is \$10,000 in excess of the corresponding net for 1940. Total net income shows a decline from \$220,000 to \$195,000. This change is of course due to the marked reduction in the special item of "profit on sale of securities."

Federal income and profits taxes again increased, the estimated charge for the current year amounting to \$45,000, over 26% of net earnings after interest charges. It should be borne in mind that these taxes are in addition to property taxes, social security taxes, and all other levies included in operating costs. The Company's tax burden is discussed in detail at another point in this report.

The decrease of \$50,000 in interest charges is almost entirely the result of the conversion during the year of the major part of the Company's debentures into common stock. This transaction is also reflected in the increase in the dividend appropriations

from \$100,000 to \$140,000. The annual rate of \$2 per share was maintained throughout the year. It is noticeable that the current rate absorbed all of the available net profits and required in addition an appropriation of surplus in the amount of \$15,000.

Comparative Income Data  
Years Ended December 31

	1940	1941	<i>Changes</i>
Net Sales . . . . .	\$800,000	\$960,000	\$160,000
Manufacturing Cost . . . . .	\$480,000	\$600,000	120,000
Selling and Delivery Expense . . . . .	90,000	110,000	20,000
General Administration . . . . .	50,000	60,000	10,000
Total Operating Expenses . . . . .	\$620,000	\$770,000	150,000
Net Operating Revenue . . . . .	\$180,000	\$190,000	10,000
Profit on Sale of Securities . . . . .	40,000	5,000	35,000 *
Total Net Income . . . . .	\$220,000	\$195,000	25,000 *
Interest on Bonds and Notes . . . . .	75,000	25,000	50,000 *
Net before Federal Taxes . . . . .	\$145,000	\$170,000	25,000
Federal Tax Provision . . . . .	30,000	45,000	15,000
Net Profit to Stockholders . . . . .	\$115,000	\$125,000	10,000
Dividend Appropriations . . . . .	100,000	140,000	40,000
Addition to Surplus . . . . .	\$ 15,000	\$ 15,000 *	30,000 *

\* Decrease.

The following is taken from the report of the Brunswick-Balke-Coller Co. for 1939:

### OPERATIONS AND RESULTS

Net profit for the year 1939, after all charges and taxes, amounted to \$2,037,435.10, as compared with \$1,003,710.37 in 1938. Netsales for the year 1939 were \$13,745,522.12, as compared with \$10,797,278.04 in 1938. Accordingly, net profits were more than doubled, while sales increased 27.3%. Selling, general, and administrative expenses (including provision for repossession losses and bad debts) amounted in 1939 to \$4,170,935.06, as compared with \$3,849,155.08 in 1938, an increase of \$321,779.98, or approximately 8.4%. It is particularly gratifying that the substantial increase in sales was obtained without a comparable increase in expense.

Net profits from foreign operations for the year ended December 31, 1939, amounted to \$58,411.65, after adjustment (primarily with respect to net current assets) to reflect the accounts carried in the foreign countries on the basis of exchange rates quoted at December 31, 1939. The net amount written off during the year for foreign exchange adjustments was \$132,121.24, substantially all of which resulted from the above mentioned valuation adjustments. Dividends received by the Parent Company from foreign subsidiaries during the year were in excess of the aggregate profits for such subsidiaries.

During the year a favorable Court decision was obtained on action taken by the Company with respect to infringement of certain of its patents and trademarks, and there is included in the net profit for 1939 an item of \$51,657.72, representing

the net amount collected by the Company in satisfaction of its claims in this regard.

The total amount charged to operations during the year 1939 for taxes of all kinds, except indirect taxes not determinable, amounted to \$842,154.07 as compared with \$614,126.75 in 1938. The total amount for taxes for 1939 is equivalent to \$1.89 per share of common stock, as compared with \$1.39 per share to cover taxes in 1938.

The net profit of \$2,037,435.10 for 1939 is equivalent to \$4.23 per share of common stock, after deducting dividends on the \$5.00 preferred stock, as compared with \$1.90 per share earned on the common stock in 1938. During 1939 four quarterly dividends of \$1.25 each were declared on the \$5.00 preferred stock, and dividends on the common stock were declared and paid as follows: \$.25 on March 15th, \$.25 on June 15th, \$.75 on September 15th, and \$1.50 on December 15th, making a total distribution during the year of \$2.75 per share. On February 19, 1940, the Directors declared a dividend of \$.25 per share on the common stock, payable on March 15, 1940, and on the same date the regular quarterly dividend of \$1.25 per share on the preferred stock was declared payable April 1, 1940.

During the year wage increases were put into effect at our Muskegon, Michigan, factory for certain job classifications, and as a further step in the interest of our factory employees a plan has been adopted, effective January 1, 1940, whereby employees at the factory who are paid at hourly rates will be entitled to vacations with pay during 1940. Under this plan any employee at the factory paid at an hourly rate who has worked approximately a full year will be entitled to a paid vacation of approximately one week's duration. It is believed that this plan to provide vacations with pay will serve to strengthen the present satisfactory relations between the factory employees and the Company.

The Management is planning to make certain improvements in buildings and equipment and other changes at the Muskegon, Michigan, factory, which are expected to result in substantially improved efficiency in the manufacture of the Company's various products. Many of the changes contemplated will be completed during 1940 and it is expected that benefits from the changes will be realized, in part, prior to the close of this year.

Sales to date during 1940 have been at higher levels than during the corresponding period in 1939 and unfilled orders likewise are higher than a year ago. From present indications, unless adverse conditions not presently predictable develop, 1940 should be a satisfactory year for the Company.

**Balance-Sheet Discussion.** In addition to the use of explanatory footnotes, sometimes of considerable length, a special discussion of financial position, as reflected in balance-sheet data, is often included in corporate reports. Matters commonly emphasized are working capital, plant expenditures and retirements, long-term borrowing, and changes in capital and surplus. The following excerpt from a recent report of Stewart-Warner Corporation is illustrative:

#### BALANCE SHEET

The condition of your company at the close of the year as shown by the attached balance sheet requires but little comment.

You will note that cash remains at about the same level as last year. Receivables have increased, reflecting the higher volume of sales, but inventories show a slight decrease when compared with those of a year ago. This is partly due to improved control and partly to the more rapid flow of business.

The physical condition of the plants and equipment has been well maintained. Depreciation charges for the year amounted to \$1,007,871, and actual additions to the plant and equipment were made in the amount of \$995,974.

We are glad to report that a sale was made of one of the larger non-operating properties during the year. Properties not used in active manufacture represent a difficult problem in any business and a reduction in the amount of capital tied up in such inactive assets is always a matter for gratification. The increase in noncurrent receivables is accounted for mainly by the mortgage accepted as part payment in this transaction.

While current liabilities increased to some extent, this was largely due to reserves provided for taxes. The ratio of current assets to current liabilities stood at 4.47 to 1 as against 4.89 to 1 a year earlier.

Total reserves increased by approximately \$123,000 due principally to the purchase by our customers of our five year refrigerator warranty.

There is a reduction in the number of shares of stock held in the Treasury and an increase in capital surplus for the difference between the market and the par value at which these shares were carried in the account. These shares of stock were provided for at the first meeting of the Board after the annual meeting of the Stockholders in 1939 as a part of the compensation of the officers receiving the same for the year 1939. It is not a continuing arrangement.

The following example of discussion of financial position is taken from a report of Brunswick-Balke-Collender Co.:

#### FINANCIAL POSITION

Your Company's financial position continues to be strong and, in general, reflects improvement over one year ago.

The current assets and current liabilities shown on the balance sheet at December 31, 1939, include only the current assets and current liabilities in the United States. The ratio of current assets to current liabilities at December 31, 1939, was approximately 7.3 to 1, as compared with the current ratio of 10.5 to 1 reflected by the balance sheet at December 31, 1938. Although the ratio of current assets to current liabilities has declined the working capital of the Company has increased from \$9,709,746.40 to \$10,166,135.50. (The working capital indicated above as at December 31, 1938, includes working capital of the Canadian subsidiary, which has been excluded in the computation of working capital at December 31, 1939, in accordance with the change reflected in the balance sheet as of that date.) It should be noted, also, that . . . net current assets in South America and Mexico . . . are not included in the respective computations of working capital.

Your Company has filed two suits against the United States Government for recovery of excise taxes assessed on certain of its products, and pending final decision with respect to these suits \$240,000.00 face value of United States Government bonds was deposited with the Federal Reserve Bank of Chicago to stay collection of additional excise taxes assessed by the Government, liability for which will be determined in accordance with the disposition of the suits above referred to. Decisions favorable to the Company were rendered following hearings of both suits in a United States District Court, but subsequently the judgments entered in these actions were appealed by the Government. The cases are still pending on appeal. In the opinion of the Management, adequate reserves have been provided in the accounts of the Company to cover its possible liability in the event unfavorable decisions are ultimately rendered.

The Company's investment in foreign countries (Canada, Mexico, Brazil, and Argentina) at December 31, 1939, comprises current assets of \$998,264.73 less current liabilities of \$102,954.08, a net amount of \$895,310.65, which is shown separately in the balance sheet, and properties and other assets of \$150,413.38. Of these net current assets \$681,814.41 is subject to exchange restrictions under present regulations.

In December, 1939, 2,078 shares of preferred stock of your Company acquired by purchase in the open market were retired, reducing the authorized and outstanding preferred stock to 30,173 shares.

The following is from a report of Armstrong Cork Co.:

### *Financial Details*

The more notable changes in the Company's financial position during 1939 are shown in the following table:

	December 31, 1939	December 31, 1938
Sales *	\$50,713,436	\$37,297,363
Cash and Equivalent . . . . .	6,935,709	8,160,566
Accounts Receivable, less Foreign . . . . .	6,410,434	4,774,842
Liquid Assets (including Cash, Marketable Securities, and Accounts Receivable). . . . .	13,384,709	12,991,173
Inventories . . . . .	14,439,997	13,115,966
Current Assets. . . . .	27,824,706	26,107,139
Property, Plant, and Equipment, less Depreciation . . . . .	22,014,090	21,770,373
Depreciation and Obsolescence . . . . .	1,675,779	1,352,846
Current Liabilities . . . . .	3,978,746	3,483,498
Contingent Liabilities . . . . .	89,042	120,211
Earned Surplus . . . . .	11,005,254	9,672,855
Total Assets . . . . .	55,290,189	53,306,870
Net Worth. . . . .	50,811,443	49,423,372
Earnings per Share of Common Stock . . . . .	5.03	.77
Investment per Domestic Employee . . . . .	5,285	5,681

\* On a comparable basis (i.e., excluding sales of businesses acquired at various times in 1938), 1939 sales were \$43,849,025 against \$34,831,512 in 1938.

The considerable expansion in sales volume accounts for the increase in Accounts Receivable and the higher level of inventories which are up about 10 per cent. Liquid assets are greater by \$393,536 and current assets increased \$1,717,567. The ratio of liquid assets to current liabilities at December 31, 1939 was 3.4 to 1; of current assets to current liabilities 7.0 to 1.

Changed but little from the previous year, the property account stands at \$22,014,090 compared with \$21,770,373 a year ago. Capital additions for the year totalled \$1,934,420. Reserves for depreciation and obsolescence amounting to \$1,675,779 were set aside from 1939 earnings as against \$1,352,846 in 1938, the increase being due to properties acquired at various dates during the latter year.

Earned Surplus has grown to \$11,005,254 as against \$9,672,855 on December 31, 1938. Total assets have increased to \$55,290,189, while net worth is up from \$49,423,372 to \$50,811,443.

With respect to raw materials, your Company has few long-term commitments of any importance. Such contracts as are in effect are on a favorable basis in relation to current prices.

**Discussion of Affairs as a Whole.** It is often unnecessary or undesirable to attempt to separate sharply the discussion of income sheet and

balance sheet. In condensed corporate reports the "letter to stockholders" usually points out the more important developments with respect to earnings and position without the use of subheadings and with no attempt to organize the comments sharply in terms of the technical exhibits. In the more elaborate reports the discussion is often broken up under a number of headings but again the usual treatment recognizes the close relation between the major statements and the need for consideration of financial affairs as a whole.

The extract from an Armstrong Cork Co. report given above, while emphasizing balance-sheet data, includes some facts with respect to volume of business and earnings.

The following brief statement of this kind is taken from the report of Abraham & Straus, Inc., for year ended January 31, 1940:

Sales for the year amounted to \$23,426,485, an increase of 2.63%.

Net profit, after provision for depreciation, interest and federal tax on income, amounted to \$1,008,141, equivalent after dividends on preferred stock to \$5.82 per share on the common stock, compared with \$804,934 or \$4.47 per share on the common stock for the previous fiscal year. The company paid dividends amounting to \$3.00 per share on the common stock during the year as against \$2.00 during the preceding year.

On April 1, 1939, \$1,000,000 of outstanding 4% notes due October 1, 1950 were redeemed at a price of 103. An additional \$150,000 of such notes were redeemed at par during 1939 through operation of the sinking fund. There now remain outstanding \$1,350,000 of these notes. During the year, the company also acquired and redeemed 1,000 shares of its 4¾% preferred stock at \$89.54 per share plus accrued dividend, leaving 21,739 shares outstanding. The retirement of the notes and of the preferred stock involved a combined cash outlay of \$1,270,412.

Cash on January 31, 1940 amounted to \$1,231,159 compared with \$2,093,973 on January 31, 1939, a decrease of \$862,814. The ratio of current assets to current liabilities was 6.21 to 1 compared with 7.35 to 1 last year.

The following somewhat more extensive example represents a portion of the letter to stockholders in a recent report of Lima Locomotive Works, Inc.:

The sales billed during the year amounted to \$5,291,496.74 compared with \$3,208,400.43 in 1938. Locomotives shipped numbered fourteen against ten in the previous year. Twelve of these, as illustrated, are of the 2-8-8-4 type, weighing 1,090,600 pounds in working order, and are among the largest locomotives ever built. The sales of the Shovel and Crane Division represented a very satisfactory increase in comparison with sales in 1938, and the profit from this Division offset materially the loss in the Locomotive Division resulting from the low volume of locomotive orders received.

The net loss for the year after deduction of manufacturing cost, administrative, development, experimental and other expenses, and depreciation on plant and equipment, amounted to \$134,326.09, compared with a net loss of \$687,034.80 in 1938. Of this loss, \$101,747.38 covers the year's depreciation charges.

The current assets at the close of the year were \$6,541,299.58 and the current liabilities \$329,523.21, the excess in current assets over current liabilities amounting to \$6,211,776.37, compared with \$6,264,813.45 at the close of 1938, a decrease of \$53,037.08. Cash amounted to \$2,657,967.91 and marketable securities \$34,254.86. Cash and marketable securities combined were \$2,692,222.77, in comparison with \$3,087,038.35 in 1938, a decrease of \$394,815.58. Bills and accounts receivable, less reserve, on the other hand, increased to \$1,735,695.52, from \$1,322,556.19 at the end of the previous year, a difference of \$413,139.33. This increase is largely attributable to the greater volume of shovel and crane sales in 1939 compared with such sales in 1938.

Inventories of materials and supplies, work in progress and finished stock, priced at the lower of cost or market, amounted to \$2,113,381.29, compared with \$2,085,208.56 at the close of 1938, a nominal increase of \$28,172.73. The Company has no future commitments for commodities, its uniform practice being to limit its purchases to current requirements.

The Company's consistent policy as to depreciation on plant and equipment has been to apply the established depreciation rates approximately on the basis of the productive activity of the plant during the year as related to the average production during what has been determined to be a normal period, namely, the ten years ended December 31, 1931. Provision for depreciation on this basis was made during the year 1939 at 50 per cent of the established rates, and amounted to \$101,757.38, compared with \$76,742.18 in 1938. Property account—land, buildings, machinery and equipment, had a book value of \$6,987,519.23 at the end of the year. The reserve for depreciation amounted to \$4,134,364.24, leaving \$2,853,154.99 as the net amount shown on the Balance Sheet.

The earned surplus account as of December 31, 1939 shows an operating deficit of \$561,680.48. Capital surplus was \$2,683,082.99, and total surplus \$2,121,402.51. Reference has been made in previous years' reports to the reserve for contingencies provided to cover possible additional Federal income tax liability for the years 1936 and 1937 and interest thereon, in the event that the excess of the proceeds over cost of reacquired capital stock sold during these years should finally be determined to be taxable income. During 1939 the Bureau of Internal Revenue advised that it considered taxable income had resulted from these transactions, and in addition it proposed reducing the depreciation claimed by the Company in the years 1936 and 1937, the resulting proposed additional assessment amounting to \$707,155.85. The Company has treated the sale of its treasury stock as capital transactions, not giving rise to taxable income. As to depreciation charges, its policy has never before been questioned by the Federal authorities. A protest therefore has been filed with the Bureau of Internal Revenue against the proposed additional assessment. The reserve for contingencies amounts to \$790,000.00. Further comment is given in the footnote to the Balance Sheet.

The Company has no bonded debt and no bank or other loans and but one class of stock.

Attention has frequently been directed in the Company's annual reports to the tax burden on industry. There has been no lightening of this load which, at least in deficit years, is tantamount to a penalty on providing opportunities for the employment of labor. For the three years, 1937, 1938 and 1939, of which only one year was a profitable year for the Company, taxes have amounted to \$771,617.00, equivalent to fourteen per cent of the total wages and salaries paid to our employees during the three year period under consideration.

**Discussion of Particular Features.** In the more elaborate reports particular features of operation and financial status often receive considerable attention. In a recent report of the Diamond Match Co., for example, the specialized subject of transactions in marketable securities is discussed in detail in pages 10–15. The following is a short excerpt from this extended discussion:

Marketable Securities, consisting of United States Government, State and Municipal Bonds, with an aggregate par value of \$11,599,125.00 were sold during the year for \$12,261,698.94, with a resultant book profit of \$669,227.27. Marketable Securities converted into cash at maturity totaled \$1,823,500.00 for the year and showed a book profit of \$1,668.92. The total par value of Marketable Securities sold or converted into cash at maturity during the year was \$13,422,625.00, with cash received from the disposition of these securities aggregating \$14,085,198.94 and resulting in a book profit of \$670,896.19. This can be compared with a book profit of \$202,484.30 during the preceding year and an average book profit from this source of \$189,105.17 for each of the five years 1934–1938 inclusive.

(Incidentally the Diamond Match Co.'s policy of "writing off at purchase the premiums paid on bonds acquired" can hardly be approved from the standpoint of sound accounting procedure.)

The text of the report of the Fruehauf Trailer Co. for 1939 is subdivided under the following special heads: sales; profits; dividends; new capital; net current assets; inventories; properties; research and development; employment; distribution and service; advertising and public relations. In connection with the consideration of working capital the report includes the following comments on installment sales:

In order to take advantage of the sales opportunities afforded by selling on a time payment plan the Company has followed a policy of financing sales to its customers through a medium of Installment Equipment Notes, which are secured by Conditional Sales Agreements or Chattel Mortgage Contracts. The Company carries its customers' installment notes to facilitate the collection of installment payments and to maintain a personal relationship with its customers. This arrangement allows for a retention of customer good will without sacrifice of financial security. During 1939, 51% of sales were so financed. Installment sales provided a gross revenue from financing charges of \$388,139.70 for the year.

Under normal circumstances financing of current inventory replacement and expenses incurred on sales made under installment terms, especially where there is a marked upswing in business, is impossible without a means for converting such sales to cash. In order to provide the additional working capital required, bank loans were increased from \$600,000.00 at December 31, 1938, to \$4,900,000.00 at December 31, 1939. There were \$5,097,242.34 of Installment Equipment Notes from customers pledged as collateral at December 31, 1939, to secure these bank loans. The increase in bank loans reflects related increases in Installment Equipment Notes, Cash and Inventories.

Because of the increase in sales volume of \$8,516,822.25, outstanding balances of Installment Equipment Notes and Accounts Receivable at December 31, 1939, were approximately double the balances at December 31, 1938.



The text of the 1939 report of the Pittsburgh Coal Co. is organized in terms of the following topics: earnings; production; cash position; properties; transportation; labor; revision of capital structure; general; personnel.

**Technical Accounting Explanations.** Occasionally careful explanation of technical accounting matters is introduced into corporate reports. The 1939 report of the American Smelting and Refining Co., for example, contains an extended discussion of "method of valuation of inventories and explanation of metal stock reserve." The following paragraphs are excerpted from this discussion:

This re-statement of the opening inventories of copper, lead and zinc through the use of the first-in first-out method resulted in an increase of \$4,277,310.55 at December 31, 1938 in the book value of the inventories with a corresponding increase in the Metal Stock Reserve. The effect of these adjustments on income for the year 1939 is an increase of approximately \$130,000 as compared with what it would have been if no change had been made in the opening inventories and exactly the same method of inventory valuation had been continued in 1939 as was in effect in 1938 and several years prior thereto. Income for future years will be unaffected by this change unless the quantities in the inventories at the end of any year are less than the relatively low quantities on hand at December 31, 1939.

In determining cost of all inventories of major metals at December 31, 1939, there was used the basic principle of last-in first-out; that is, during the year the cost of purchases of each metal was charged against sales of an equivalent quantity of such metal—the excess quantity, if any, of purchases over sales being added to inventory at cost of such purchases. Thus, cost at December 31, 1939 of each of these metals was, up to the extent of the quantity equivalent to the opening inventory, the same value (revised in case of copper, lead and zinc as described above) at which it was included in the opening inventory; and for the quantity in excess of the opening inventory, the cost of such excess based on the average cost of all purchases of that metal during the year. If either the beginning book value or the cost of the excess of purchases was above market at December 31, 1939, it was reduced to market.

Another example is found in the "notes to consolidated statements" included in the annual report of Bethlehem Steel Corporation for the year ended December 31, 1939. The following is the first paragraph of one of these notes:

*Note D—Property Account—Basis of Valuation:*

The gross book value of property, plant and equipment owned or held under lease at December 31, 1939 (except in the case of rolls, moulds and stools, charging boxes, flasks and annealing boxes and bottoms, which are included in the property account at net value, in most cases at salvage value), is the aggregate of the gross book values assigned to property, plant and equipment acquired or constructed, less the aggregate of the gross book values of the property, plant and equipment subsequently dismantled, retired or sold, and less the reserves provided subsequent to acquisition or construction for amortization of war facilities and for depletion. In the case of property, plant and equipment acquired otherwise than by construction the gross book

values so assigned are based on cost (taken as hereinafter stated), plus (1) the reserves for depreciation carried at the respective dates of acquisition on the books of corporations all or substantially all of the capital stocks of which were acquired and which were continued as going concerns (with some subsequent adjustments) and (2) the reserves for depreciation set up on the books of one or more subsidiary companies consolidated as of the respective dates of acquisition in respect of property, plant and equipment acquired otherwise than through the acquisition of capital stocks, in order to give effect to the depreciation policy of Bethlehem Steel Corporation and its subsidiary companies consolidated. In the case of property, plant and equipment constructed the gross book values so assigned are the aggregate of the actual cash expenditures made, except that materials used in the construction thereof which were produced by one or more subsidiary companies consolidated were included at the manufacturing cost thereof, excluding from such cost any profit (estimated) that resulted from inter-company, inter-plant or inter-department transfers of such materials.

**Collateral Discussion.** As already suggested the comprehensive report to stockholders is not confined to accounting material. Among the topics often considered in considerable detail are: physical operating data; technical description of products; personnel problems; relation to government agencies; sales efforts; general business prospects. In the 1939 report of the Diamond Match Co., for example, there are many pages of discussion of physical operations, including several pages devoted to problems of lumbering created by the New England hurricane of 1938. A recent report of Union Carbide and Carbon Corporation devotes about fifteen pages to descriptions of some of the corporation's products.

Occasionally one encounters in corporate reporting a bit of business moralizing. The following comment on the subject of war and business is taken from a report of Tide Water Associated Oil Co.

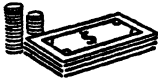
It is a mistake to believe that anyone profits by or from war. War may temporarily stimulate the demand for products, but as in the case of all stimulants, the final reaction is unfavorable. In many instances such increase in volume may show an increase in earnings, but when the final audit is made and post-war operations are charged against the wartime revenues, the balance is often shown in red figures. War does not produce wealth; it destroys wealth; and the destruction of great wealth in any part of the world has a depressing effect on prosperity in all parts of the world.

**Use of Graphs.** It has long been recognized that graphic presentation is an effective device in disclosing and interpreting financial data, and it is rather surprising that the device has not been used more widely in published corporate reports. Often the chart, diagram, or other related device is much more useful than an array of captions and figures, however well arranged, as a means of conveying essential information to those lacking technical training in accounting. The graph can be employed to particular advantage for the purpose of emphasizing relationships and portraying trends.

## SIMPLIFIED CONSOLIDATED BALANCE

(IN ROUND FIGURES)

**THIS IS THE ASSET SIDE OF THE BALANCE SHEET  
AND SHOWS WHAT WE OWNED**



**1.** Cash and readily marketable securities.....\$ 1,900,000



**2.** Customers owed us for coal, etc..... 5,500,000



**3.** Value of coal above ground, other merchandise  
and supplies in stock for future sale or use.. 7,700,000



**4.** Bonds, stocks, and other securities, of which  
securities costing \$733,000 and cash of  
\$104,000 are deposited with a Trustee to  
guarantee payment of workmen's compensa-  
tion claims..... 3,200,000



**5.** Securities and cash deposited with Trustees for  
payment of bonds outstanding..... 2,600,000



**6.** Coal and surface lands, mine plants and equip-  
ment, railroads, docks on the Great Lakes,  
etc., at the appraised value on January 1,  
1916, or at the cost to us, less depreciation on  
plants and equipment.....109,000,000



**7.** Patents and payments made which are chargeable  
against future operations such as prepaid  
insurance..... 700,000

**8.** Total.....\$130,600,000

# SHEET AT DECEMBER 31, 1939

TO NEAREST \$100,000)

THIS IS THE LIABILITY SIDE OF THE BALANCE SHEET AND SHOWS  
WHAT WE OWED OUR CREDITORS AND BONDHOLDERS AND  
WHAT IS LEFT FOR OUR STOCKHOLDERS



1. For wages, supplies, electric power, taxes, interest, etc., and for money borrowed from other people that must all be paid within one year.....\$ 5,600,000



2. For workmen's compensation claims payable in installments, mine employees' pension fund, and miscellaneous bills..... 1,100,000



3. For money we borrowed from other people for periods longer than one year to buy cars, motors, track, tipples, cutting machines, screens, substations, air shafts, mine openings, buildings, river boats, barges, docks and other permanent improvements..... 15,800,000



4. For extraordinary losses resulting from fire, storm or other casualty..... 400,000



5. For equity of minority stockholders in certain subsidiary companies..... 2,000,000

6. Total that we owe to everybody..... 24,900,000



7. The difference between the above total and the total of the assets represents what is left for our stockholders. This is now represented not by cash but by coal lands, mines, equipment, etc.....105,700,000

8. Total.....\$130,600,000

# **SIMPLIFIED STATEMENT OF CONSOLIDATED INCOME AND EXPENSE**

(IN ROUND FIGURES TO NEAREST \$100,000)

**1939**



During the year ended December 31, 1939, income from sales of coal and from other operations, including net income from miscellaneous transactions, amounted to..... \$36,000,000



Wages, salaries, supplies, and other operating, selling and administrative costs were..... 30,500,000



Leaving for taxes, bond interest, wear and tear on plants and equipment and for the cost of coal mined from the company's properties..... 5,500,000



Taxes took..... 2,100,000



Interest on outstanding bonds required..... 900,000



Wear and tear (depreciation) on plants and equipment amounted to..... 2,400,000



Cost of coal mined from the company's properties (depletion) amounted to..... 1,200,000

The result for the year being a net loss of..... \$ 1,100,000

To be worth while in connection with financial reporting to stockholders and other interested groups the graphic devices used must be accurate and simple. Complex graphs have no wide applicability because of difficulty of interpretation. It is not hard to find examples of charts in corporate reports which are more difficult to read and understand than the tabulated figures on which they are based.

The graph, it should be understood, is not in general a substitute for the conventional statements. It is a supplementary device, designed to make the facts shown by the regular statements more intelligible and

**ASSETS**

Current Assets \$23,013,000.00 22.53%
Investments and Receivables, Other than Current \$6,643,000.00 6.50%
Capital Assets (Plant Properties, Timberlands, and Intangibles) \$71,774,000.00 70.25%
Deferred Charges \$740,000.00 .72%

**LIABILITIES AND CAPITAL**

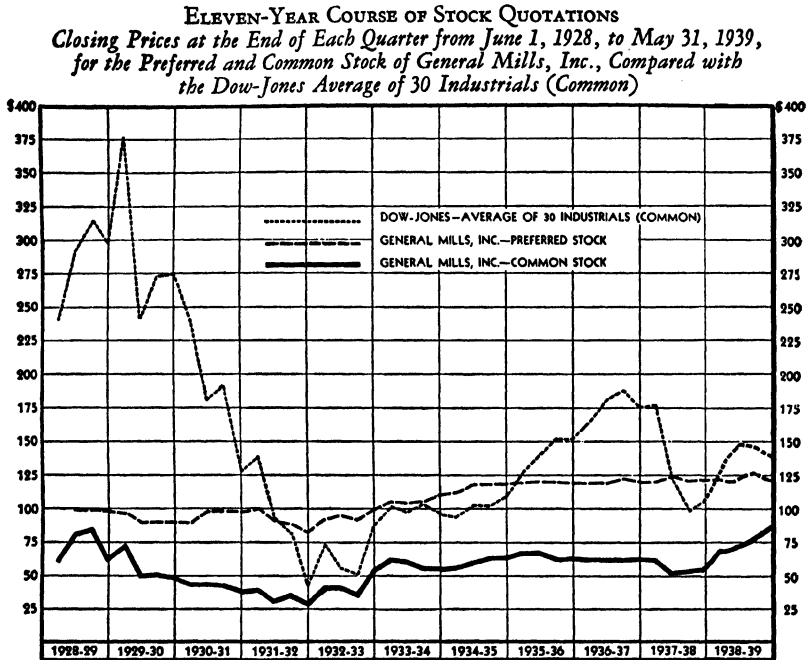
Current Liabilities \$7,242,000.00 7.09%
Notes and Contracts Payable Subsequent to April 30, 1940 \$16,895,000.00 16.53%
Minority* \$1,212,000.00 1.19%
Equity of Crown Zellerbach Corporation Stockholders \$76,821,000.00 75.19%

TOTAL . . . . . \$102,170,000.00

\*Equity of minority stockholders of Pacific Mills, Limited.

impressive. Pictorial presentation is allied to the use of graphs, and often graphs are employed which have pictorial features.

**Graphic and Pictorial Statements.** The accounting graph is ordinarily confined to particular elements drawn from one or both of the major



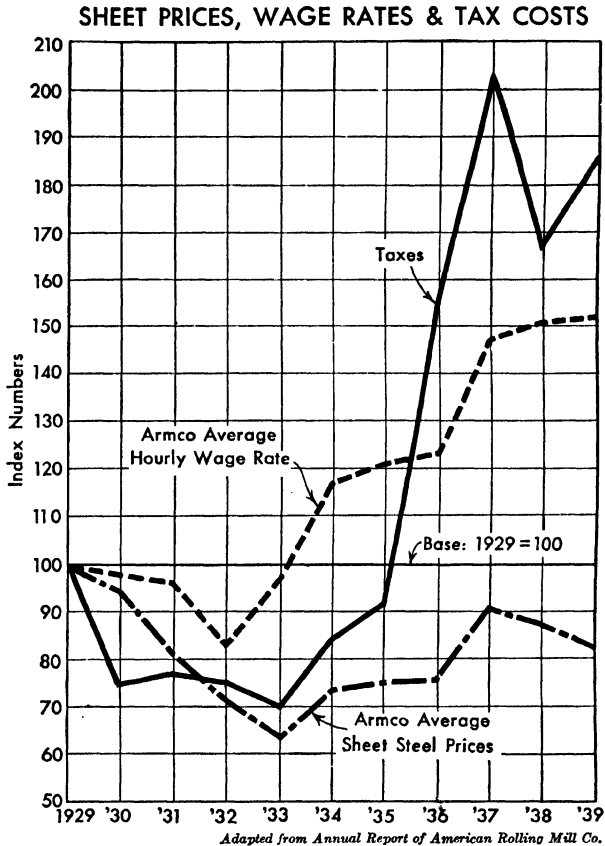
financial statements, or from details underlying the statements. Occasionally, however, the effort is made to present the data of an entire statement in simple graphic form. The example on page 713 is taken from the report of Crown Zellerbach Corporation for the year 1939.

The report of the Pittsburgh Coal Co. for 1939 contains—in addition to statements of the conventional type—"simplified" statements which include the pictorial feature. These are reproduced on pages 710-712.

In recent reports of Botany Worsted Mills are included—in addition to statements in ordinary form—statements with "figures humanized for our stockholders and employees" by the use of elaborate pictorial trimmings.

Pictorial statements undoubtedly attract attention, and may have some interpretive value.

**Curve Charts.** One of the common forms of graphic presentation is the curve chart. This type of chart consists essentially of one or more continuous lines connecting various plotted points representing values or amounts through two or more periods. The amounts and trends of revenues and expenses, in totals or by major classes, are often compared by this means. Seasonal fluctuations of a particular factor for successive

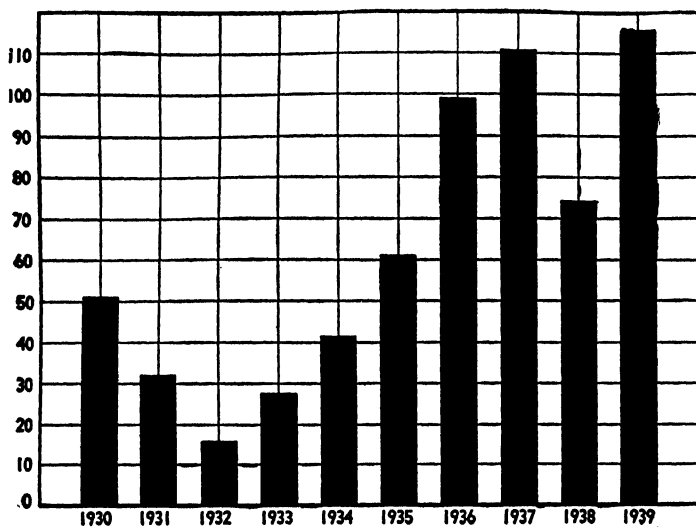


periods can likewise be shown effectively through the use of superimposed curves, sharply distinguished by means of color or other characteristic. As a rule not more than three or four curves can be clearly presented on a single chart. Not infrequently the person preparing charts allows his ingenuity to run away with him, with the result that the chart is so cluttered with lines as to be almost unintelligible. The tendency to undue complexity, of course, is not confined to curve charts.



# SALES

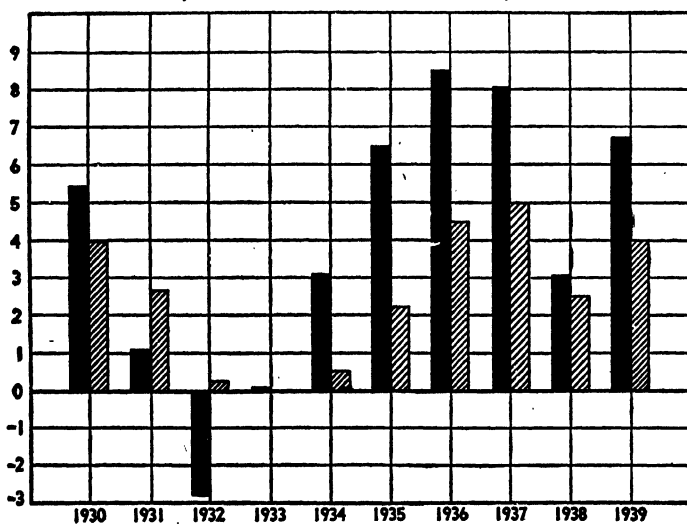
## Millions of Dollars, 1930-1939



# EARNINGS AND DIVIDENDS PER SHARE

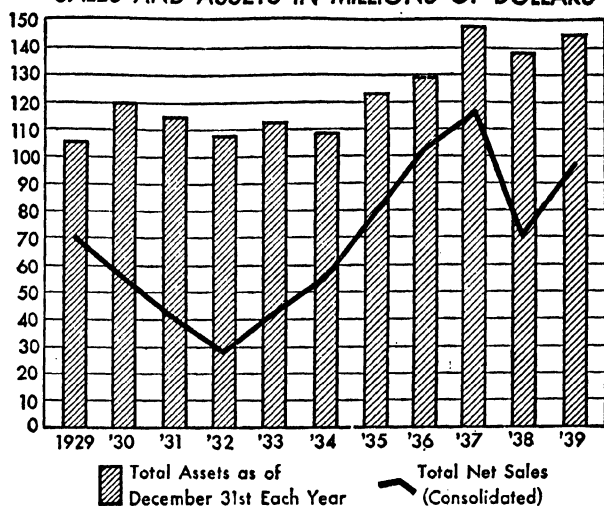
## Dollars, 1930-1939

*(Shaded areas show dividends)*

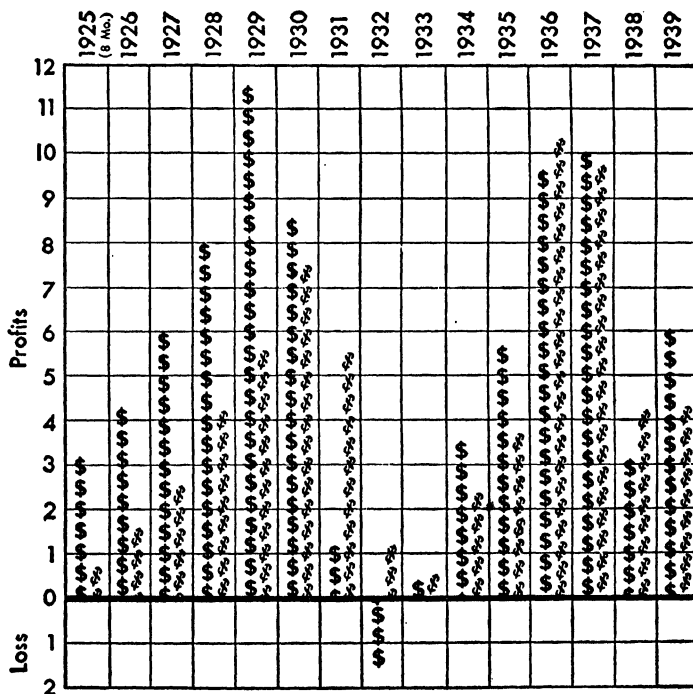


Adapted from Annual Report of Inland Steel Co.

# SALES AND ASSETS IN MILLIONS OF DOLLARS

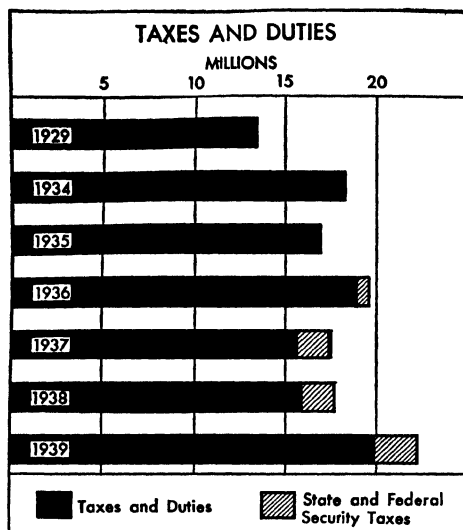


Adapted from Annual Report of American Rolling Mill Co.



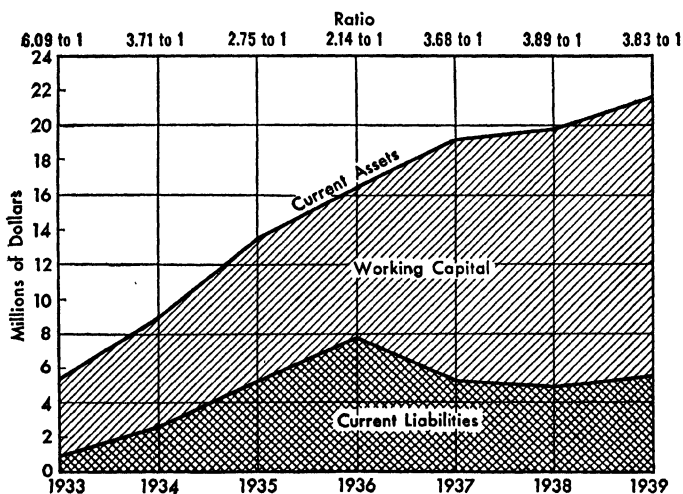
\$ Profits and losses; % Dividends (Millions of Dollars)

Adapted from Annual Report of Caterpillar Tractor



*Adapted from Annual Report of Goodyear Tire & Rubber Co.*

### NET WORKING CAPITAL AND CURRENT RATIO



*Adapted from Annual Report of Electric Auto-Lite Co.*

Examples of curve charts reproduced or adapted from recent reports are shown on pages 714-715:

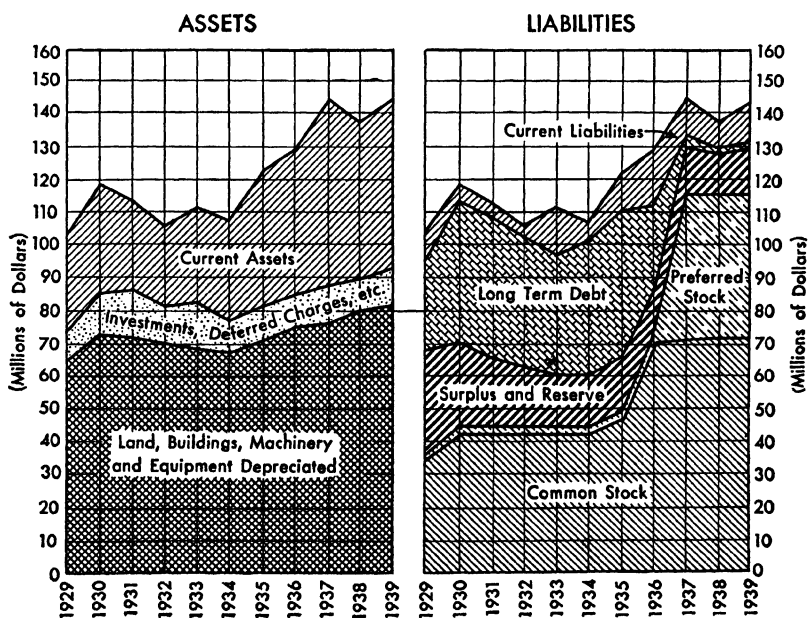
**Column and Bar Charts.** The column or "staircase" chart is another familiar method of graphic presentation. Through the separation of columns into sections, variously colored or shaded, or through the use of two or more columns for each period, comparisons of related factors are readily made by means of column charts. The simple examples on page 716 are taken from the report of the Inland Steel Co. for 1939.

The example of a combination of curve and column chart on page 717 is taken (with minor changes) from a recent report of the American Rolling Mill Co.

Recent reports of Caterpillar Tractor Co. contain a number of examples of column charts with a pictorial feature. In the sales chart (see page 717) dollar signs are used in lieu of ordinary columns.

Turned so that time is measured vertically and amount horizontally the column chart becomes the "bar" chart. The example on page 718 is adapted from a chart shown in a report of Goodyear Tire & Rubber Co.

### BALANCE SHEET TRENDS 1929-1939

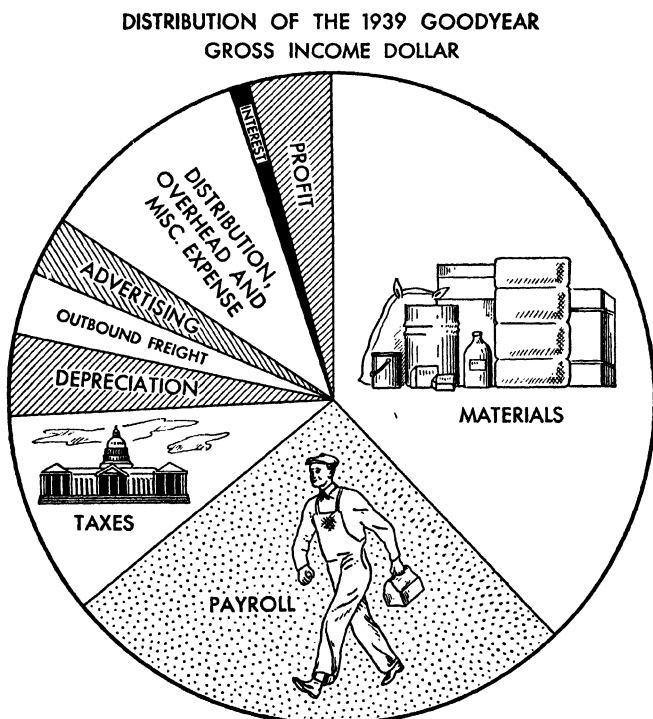


In some charts the spaces between columns or bars are omitted, but for most purposes contiguous array is less satisfactory than spaced.

**Strata Charts.** The character of this type of chart is shown by the simple example on page 718 taken from a recent report of Electric Auto-Lite Co.

The 1939 report of the American Rolling Mill Co. contains an interesting example of a comparative balance sheet presented in the form of a strata chart. This is reproduced on page 719.

**Other Types of Charts.** The "pie" chart is a popular form of showing comparisons by relative areas. This type of chart has been used particularly in showing the composition or utilization of the sales dollar. An interesting example, which includes the pictorial feature, is found in a recent report of the Goodyear Tire & Rubber Co. The chart shown below is an adaptation.



*Adapted from Annual Report of Goodyear Tire & Rubber Co.*

## XXXII

### COMPREHENSIVE ANALYSIS ILLUSTRATED

**Nature and Purpose of Example.** As a means of emphasizing the lines of statement analysis discussed in the preceding chapters a comprehensive example is given at this point. The materials used are the actual balance-sheet and income-sheet data of a fair-sized corporation, the Dowagiac Co., engaged in manufacturing stoves and furnaces. These data were made available in condensed form, with no supporting schedules or explanations of any kind. Accordingly it is necessary to make various assumptions and to couch the discussion in somewhat hypothetical terms. An analytical report under these conditions is subject to obvious limitations. At the same time the illustration has a special value as an indication of the possibilities of tracing the effects of major transactions and making significant analyses of working capital, long-term solvency, earning power, etc., with no more information at hand than is afforded by comparative schedules of balance-sheet and income-sheet figures.

The tables on this and the following page represent the data furnished by the Dowagiac Co., with amounts stated in nearest dollars.

DOWAGIAC COMPANY  
Balance-Sheet Data at End of Calendar Year

<i>Debit Balances</i>	<i>1939</i>	<i>1940</i>	<i>1941</i>
Cash . . . . .	\$ 388,946	\$ 179,332	\$ 341,544
Receivables . . . . .	1,111,136	1,136,770	1,057,097
Inventories . . . . .	1,386,907	1,048,105	1,110,535
Other Current Assets . . . . .	267,210	740,027	31,388
Land . . . . .	554,903	272,697	260,697
Buildings and Equipment . . . . .	2,935,891	2,245,020	2,319,320
Goodwill . . . . .	3,211,891	3,211,891	1
Investment in Other Companies . . . . .	110,166	108,042	106,341
Mortgage Note . . . . .	—	500,000	500,000
Deferred Charges . . . . .	7,399	7,106	7,868
Other Fixed Assets . . . . .	204,510	229,510	229,510
	<u>\$10,178,959</u>	<u>\$9,678,500</u>	<u>\$5,964,351</u>



In this tabulation the amount of "deferred charges," which may represent in whole or in part bona-fide current assets such as supplies and prepaid insurance, is excluded. "Investment in other companies" is likewise excluded, although the securities involved may be of marketable type and available for sale. The precise caption used suggests a noncurrent investment, and it is noticeable that the amount shows little variation throughout the years covered. The "other current assets" are included, notwithstanding the fact that there is no direct indication of their nature. Presumably these assets consist of readily realizable investments and thus constitute a backlog of liquid resources. This is borne out by the indication that it is primarily by means of the disposition of "other current assets" that the preferred stock retirement is effected in 1941.

The amount of cash carried—as shown by year-end balances—averages 45% of the average total current liabilities. Cash and "other current assets" on the average amount to 97% of the current liabilities. The position of the Company with respect to working capital thus appears to be very good, particularly since current liabilities are showing no marked tendency to increase. The fact that the long-term liabilities are of relatively negligible amount also tends to support a favorable conclusion as to quick position; these liabilities—which are being retired in the amount of \$7,000 per year—could be paid in full without difficulty. It is true that net working capital as computed here has declined around \$650,000 between the end of 1939 and the close of 1941, but this need not be construed as a particularly unfavorable development. Apparently the funds taken from working capital have been applied to retirement of preferred stock, which has been reduced by over \$800,000 in the period under review.

This raises the question: would it not have been advisable to have utilized at least part of these funds to reduce current liabilities? It is possible that the amount of such liabilities, which shows comparatively little variation, depends upon the nature of the business and the volume of purchases, but in view of the other data available it seems reasonable to assume that the average amount of liabilities carried might well be decreased. Current liabilities have increased somewhat—comparing 1939 and 1941 figures—although the amount of inventories is down; at the end of 1941 they total nearly 61% of inventories at that date. If these liabilities consist largely of trade accounts payable either an unusually long credit term or a high inventory turnover rate is indicated, and while turnover in the narrow sense cannot be computed from the data available a comparison of inventories and operating charges does not support the hypothesis of an especially rapid movement of inventories. If bank loans are a substantial factor it would appear that permanent liquidation of such loans might well have preceded the use of available funds to retire stock. Special circumstances which cannot be gleaned from the information furnished may of course justify the reduction in preferred stock as opposed to a scaling down of floating debt. See comment on interest charges below.

Taking receivables and inventories also into consideration the current ratio runs from about 5 to 1 at the end of 1939 to considerably less than 4 to 1 at the end of 1941. The amount of receivables outstanding shows remarkable stability; evidently collections are keeping pace with credit sales. To what extent, if any, these receivables bear interest can scarcely be determined from the data available, as the "interest income" appearing in the income data might have arisen from other sources. At the end of 1939 "other current assets" total about \$267,000 and if these are high-grade marketable securities the "interest income" for the year is more than could reasonably be attributed thereto. The investments during the year may of course have been larger than the balance on December 31. The item of "investment in other com-



panies" probably represents stocks—note the "dividends and rentals" earned—although interest-bearing securities may be included. See discussion of mortgage note below. The allowance for uncollectibles is small, the balance shown averaging less than 3% of the gross amount of receivables outstanding. Accordingly the net balance on the books can hardly be treated as the equivalent of cash. At the same time the receivables—averaging about one-sixth of sales—do not represent an extraordinary amount; it may well be that they are for the most part sound assets.

As already suggested, inventories seem rather large for the volume of business and in comparison with total expenses, but the amounts are not highly unreasonable in view of the nature of the enterprise. Further, the figures for 1940 and 1941 are distinctly under the 1939 total. There is no indication of the basis of valuation employed and there are no definite clues as to the quality of the inventory.

It should be borne in mind that with but three observation dates precise averages cannot be calculated and fluctuations may be missed which have a decided bearing on the situation.

**Capital Structure and Solvency.** General evidence on the question of ultimate solvency is afforded by the proprietary ratio, the total of the stockholders' equity to the net book assets, interpreted in the light of the earning power displayed. The condition in this case, in approximate percentages, is as follows:

	1939	1940	1941
Including goodwill . . . . .	92%	91%	91%
Excluding goodwill . . . . .	88	86	85

(With goodwill included—added back for 1941—the numerator in each case is the sum of the capital stock accounts and surplus and the denominator is the recorded amount of assets after deduction of the two contra reserves; with goodwill excluded the process is the same except that goodwill is omitted from assets throughout and deducted—for 1939 and 1940—from the amount of common capital stock.)

This concern evidently operates primarily on stock capital (and funds represented by current liabilities) and stands in no danger of bankruptcy as long as it is able to meet its operating expenses. With goodwill as recorded in earlier years excluded the situation is slightly less favorable in 1941 due to the retirement of preferred stock without substantial decrease in liabilities, as explained above.

It is noticeable that the common-stock equity, after the elimination of goodwill, is slightly under two million dollars, less than the amount of preferred stock in 1941 notwithstanding the decrease in preferred. The percentage of common stock to net book assets, excluding goodwill, is but 35% in 1939 and less than 41% in 1941. Assuming that the common stock is held by a distinct group, it is therefore apparent that the position of this interest is not very secure, especially from a liquidation standpoint, although it is being strengthened by the policy of retiring preferred stock. Continuation of dividends to the common stockholders, further, requires the maintenance of a level of earnings above the substantial requirements of the senior equity. Assuming preferred dividend requirements to be cumulative serious impairment of the junior equity would result if the revenues fell to the level of operating costs—to say nothing of possible losses—for a few years. With respect to surplus, incidentally, the common stock equity shows a slight decrease during the period under consideration.

The Company's interest charges average less than \$3,000 per year, not a serious burden on earnings. It seems clear that these charges apply solely to the fixed liabilities. At any rate, the amount by which interest is reduced in 1940 and again in

1941, \$420, is just 6% of \$7,000, the annual reduction in the outstanding liability. A single mortgage or purchase contract seems to be involved, as the amount outstanding at the end of each year is divisible exactly by 7,000. (Analysis of the interest charge, further, shows that the amount each year is 6% of the liability balance at the end of the year plus 6% of \$7,000 for eleven months, which demonstrates that payment is regularly made at the end of January or the first of February.) The balance outstanding at the end of 1941 is only \$35,000 and will be retired in five years if the present schedule of payments is maintained. That there are no bank loans or other current interest-bearing obligations outstanding at any time throughout the three years covered is also demonstrated by this analysis.

Long-run solvency is of course a question of earning power even more than a matter of capital structure.

**Earning Power.** In this case, with the interest-bearing obligations of small amount, there is no substantial difference between the two significant points of view from which earning power may be measured: (1) that of operating management, which treats the enterprise as an economic entity regardless of the capital structure; (2) that of the stockholders, who are interested particularly in the earnings on their equity. The contrast between the positions of the two classes of stockholders must be emphasized, however, and there is the special factor of recorded goodwill to be considered.

In the calculations of enterprise earning power in this case "interest income," "dividends and rentals (net)," and "other income" are included in operating net and "taxes" are deducted. In addition there is added to the figure for earnings 6% of the amount of current liabilities to cover the implicit interest on the capital secured through this source buried in operating charges (it having been determined that no explicit interest charges are involved). The amount of current liabilities used in this computation for 1939 is the balance at the end of the year; in 1940 and 1941 an average is determined on the basis of opening and concluding balances. Goodwill is excluded in determining amount of resources employed but "investment in other companies," "mortgage note," and "other fixed assets" are included, although these may be "non-operating" in the strict sense of the term. Contra-valuation accounts are of course deducted in determining net book value of assets. For 1939 the asset figures as of the end of the year are used. For 1940 and 1941 an average of beginning and ending balances is employed. This assumes that major changes such as sale of plant (see below) take place in the middle of the year, and that the effects of accruing earnings, dividend payments, and other operating or financial processes "average out." The resulting managerial earning ratios for the three years are as follows:

	1939		1940		1941	Ave.*
Adjusted Earnings.	\$ 569,343		\$ 425,925		\$ 344,960	
		10.1%		7.7%		6.7%
Resources Employed	\$5,659,933		\$5,548,450		\$5,144,528	8.2%

\* Simple average of rates for three years.

It appears from the foregoing that this company has enjoyed a fairly high average earning rate on resources employed during the three years covered. It also appears, however, that the earning power declined from 10.1 in 1939 to 6.7 in 1941—a substantial drop. The rates computed, with goodwill excluded throughout, give slight evidence of the existence of intangible value. With a downward trend of earning power the outlook for the future is not particularly bright; the available data, on the other hand, do not furnish an adequate basis for definite prediction as to the future course of earning power. See discussion of operating data.

The proprietary earning rate is measured in this case as the net income legally available for the entire stock equity, after income taxes and all charges, to the average book value of the stock equity after deducting the recorded goodwill from the stated amount of the common capital stock. For each year the stock equity is found by taking the average of the opening and concluding balances as shown by the capital stock accounts, after deducting the recorded goodwill from the amount of the common capital stock, adding surplus at the beginning of the period and adding (or deducting) one half of the increase (or decrease) in surplus, the difference between profits and dividends. For 1939 the capital stock accounts are assumed to be unchanged throughout the year. The approximate percentages are shown by the tabulation below. The proprietary rate is slightly higher than the managerial, all-capital rate as computed above (due mainly to the effect of assuming that the implicit rate earned by the capital represented by current liabilities is 6%, which rate is lower in each year than the calculated enterprise earning power).

	1939		1940		1941	Ave.*
Net to Stockholders	\$ 527,926		\$ 383,080		\$ 301,366	
Average Stock Equity	\$5,117,034	10.3%	\$4,837,287	7.9%	\$4,420,878	6.8% 8.3%

\* Simple average of rates for three years.

The earning power of the common stock equity is computed by applying the net profit after preferred dividends to the average book value of the equity for the period. In this calculation the surplus account is assumed to attach entirely to the common stock. Excluding goodwill throughout the resulting rates are as shown in the following tabulation. These figures show a decline in common stock earning power from the level of 1939, although the simple average for the three years is good. Evidently the position of the common stock is not very promising, although by no means precarious. If the trend of the last two years should persist for another year or two the earning power of the junior equity would be gone.

	1939		1940		1941	Ave.*
Net to Common Stock	\$ 318,052		\$ 178,428		\$ 131,031	
Average of Common Stock Equity	\$2,119,434	15.0%	\$1,987,687	9.0%	\$1,982,428	6.6% 10.2%

\*Simple average of rates for the three years.

Preferred dividend requirements were earned  $2\frac{1}{2}$  times in 1939 and were covered by a substantial though declining margin in the other two years.

**Analysis of Operating Data.** Sales declined around \$830,000 in 1940 as compared with the volume of 1939, a drop of between 11 and 12%. At the same time operating expenses were reduced about \$600,000, between 9 and 10%. This situation appears to be related to the disposition of fixed assets (see discussion below). For 1941 the decrease in sales was only about \$80,000, a fall of less than 2% of the volume of the preceding year. The most discouraging feature of operation for 1941 is the increase in expenses suffered in the face of some reduction in revenue. The increase in operating charges is small, it is true, but the effect of this condition coupled with the decline in sales is to reduce the net profit realized in 1941 very substantially. See discussion of earning power above. The operating ratio ("operating expenses" to net sales) is around 89% in 1939, 92% in 1940, and 93% in 1941. This trend, of course, is not in the right direction. The cause of the trend cannot be determined from the data; it may reflect new conditions for which the management cannot be held re-

sponsible. Since operating expenses are not broken down in the material available there is no possibility of examining trends in particular classes of charges.

**Dividend Policy.** During the period under consideration the Company has disbursed dividends considerably in excess of the profits earned. In fact surplus accumulated prior to 1939 has been absorbed by dividends to the extent of nearly \$300,000. This is not common corporate practice. However, where the money is not needed in the enterprise it is better to pay dividends than to consume funds in unwise ventures, and, as has been pointed out, this concern is maintaining a fairly strong working-capital position. On the whole somewhat smaller dividends coupled with some reduction of current obligations would seem to have been desirable.

The common dividends paid in 1939 amount to over 30% of the common stock equity as of the end of the year, excluding goodwill. The rate in 1940 and 1941, on the same basis, approximates 8%.

**Write-Off of Goodwill.** The charging of goodwill to the stated value of capital stock in 1941 suggests that this figure originated in connection with organization transactions and was not a cash purchase. As indicated above, earnings are not sufficient to afford a substantial basis for recognition of intangible values.

**Retirement of Preferred Stock.** This transaction is referred to above in the discussion of working-capital position. The preferred stock appears to be a 7% issue, and the effective dates of retirement can be estimated by considering the dividend charges as shown in the income data. Retirements in 1940 seem to be concentrated around the beginning of the last quarter, and in 1939 toward the last of the second quarter. (The preferred dividends of \$204,652 in 1940 amount to exactly 7% of \$2,701,600 plus 7% of three-quarters of \$296,000.) These evidences were not taken into consideration in estimating average stock equity above.

**Reduction of Fixed Assets.** The balance-sheet figures disclose the fact that a major transaction in fixed assets took place during 1940. No details are available but it is nevertheless possible to determine fairly closely what occurred. The land account shows a decrease of, roughly, \$282,000. That this is the result of a sale rather than a write-down is evidenced by the fact that there are no charges to income or surplus representing any type of revaluation. It is of course possible that the net change is brought about by a number of transactions with effects in both directions but it is more reasonable to assume that there were no substantial additions to land during the year and that one or more major parcels were disposed of. The buildings and equipment balance shows a net decline of about \$691,000. No doubt there were a number of minor additions and retirements during the year, but assuming that these approximately offset each other, again a major disposition of property is indicated. The total gross book value of property disposed of, then, appears to total about \$973,000, a considerable fraction of the fixed assets.

Tracing the effect of this transaction further brings to attention the mortgage note of \$500,000. It is almost a certainty that when the fixed assets were sold a mortgage of \$500,000 was taken back. It is obvious that this company would not be likely to purchase such an asset as an investment and in any event it is difficult if not impossible to find a source of funds in the data presented adequate for this purpose and not clearly disposed of otherwise. The mortgage note, therefore, represents a partial settlement in connection with the sale of fixed assets.

The reserve for depreciation must next be examined. This account shows a decline in 1940 of about \$280,000. It appears, then, that the depreciation applicable to the property sold amounted to at least this figure. However, it must be borne in mind that the depreciation reserve has been credited during 1940 with the amount charged

to operations for the year, an amount which is not isolated in the income data given. This item may be readily estimated. In the first place the depreciation reserve is increased in 1941, when there seem to be no major retirements, by approximately \$85,000, and it is probable that this is in the neighborhood of the depreciation actually charged to operation. This represents a rate of about  $3\frac{3}{4}\%$  of the average buildings and equipment balance during 1941 (about \$2,282,000, assuming that the additions for 1941 occurred in midyear, or, what amounts to the same thing, uniformly throughout the year). Applying this rate to the average buildings and equipment balance for 1940 (about \$2,590,000, assuming the major disposition of property came at midyear and that minor additions and retirements are equal) gives \$97,000 as an estimated depreciation charge during 1940. According to this estimate the total debit to depreciation reserve in connection with sale of plant assets is approximately \$377,000 (\$280,000 plus \$97,000). The rate derived above, it may be added, is about what one would expect for a large aggregate of industrial property with a substantial amount of long-lived structures included.

Assuming a 6% mortgage the interest income account includes interest on mortgage to the amount of \$30,000 in 1941. As suggested above, the retirement of preferred stock in 1941 seems to be effected around midyear and presumably the "other current assets" are largely utilized for this purpose. If "other current assets" represents high-grade and readily marketable bonds, drawing interest at around 4% per annum, the balance of the interest income account in 1941 is approximately accounted for (\$700,000 at 4% per year yields \$14,000 in six months). It follows that the interest income of 1940, which exceeds the corresponding earning in 1941 by around \$1,500, might likewise be assumed to include mortgage interest for one year without doing violence to any of the available facts. In other words, the plant property may have been disposed of and the mortgage received early in 1940 rather than around July 1 as assumed above. In the absence of more definite evidence, however, the depreciation charge for 1940 may be estimated on the basis of an average of opening and concluding balances.

An estimate of the debit to depreciation reserve upon the sale of property may be made by another approach. The property sold may well involve the older units; at any rate, in a transaction of this size, the percentage of depreciation accrued on gross book value of property sold may be assumed to be as high as the percentage accrued on all depreciable property. The depreciation reserve at the end of 1939 is something over 43% of the gross book value of buildings and equipment at that date. By midyear, 1940, the total accrual (adding one-half of the 3.75 rate) is about 45%. Applying 45% to the gross book value of depreciable property retired, \$691,000, gives approximately \$311,000 as the accrued depreciation to date of retirement, an amount \$66,000 less than that arrived at by the other method.

There is no way of determining the amount of book profit or loss resulting from the disposition of plant. However, it is probable that the increase in "other income" in 1940 above the level of this item in the other years is largely accounted for by a profit arising from the sale of fixed property. As a reasonable guess a figure of \$20,000 is assumed.

Accepting the first estimate of the debit to depreciation reserve as the more dependable the entire transaction may now be reconstructed approximately by means of the following journal entries:

Reserve for Depreciation . . . . .	\$376,887	
Mortgage Note . . . . .	500,000	
Cash . . . . .	116,190	
Land . . . . .		\$282,206
Buildings and Equipment . . . . .		690,871
Other Income . . . . .		20,000
	<u>\$993,077</u>	<u>\$993,077</u>

This analysis shows that the sale of property was not the main source of funds used to acquire marketable securities, and, later, to retire a substantial block of preferred stock.

It is to be noted that with a decrease in gross book value of plant assets of around 28% the volume of sales in 1940 shows a decrease of less than 12%.

Evidently a piece of land with a book value of just \$12,000 is disposed of in 1941. Another similar item is the precise increase of \$25,000 in "other fixed assets" in 1940.

**Statement of Funds.** The major financial operations of 1940-41 as disclosed by the comparative and combined statement of funds on page 730 may be summarized as follows: (1) of the funds available from earnings—including revenues covered by depreciation charges—disbursements as dividends absorb all but about \$175,000; (2) net working capital to the extent of around \$653,000, coupled with the balance of revenue funds, \$175,000, and amount realized from liquidation of various capital assets, \$112,000, is utilized to retire preferred stock in the amount of roughly \$822,000, acquire various fixed assets of around \$100,000, and retire fixed liabilities of \$14,000.

In preparing the statement of funds the depreciation charge to operations assumed for 1940 is the estimated figure of \$97,000 referred to earlier; the figure used for 1941 is the amount of the increase in the reserve, \$84,766.

**Utilization of Surplus.** How is the surplus of this company, which stands without marked change through the last two years covered, invested? Some light may be thrown on this question by studying the balance-sheet relationships as exhibited. The net working capital at the end of 1941, for example, is \$1,837,808. The surplus account at this point is \$701,417, approximately 17% of the total recorded stock equity of \$4,143,251. Accordingly 17% of the net working capital, or an amount of \$312,427, may be said to be accounted for by surplus accumulation. The balance of surplus, by similar reasoning, may be said to be invested in capital assets. The other principal line of interpretation emphasizes the changes as shown by the comparative balance-sheet data. These data show that net working capital has been shrinking during the period under review and that fixed assets are not expanding. From this standpoint it appears that the funds generally represented by surplus have been utilized primarily to retire preferred stock. This view assumes that present net working capital is adequate for the needs of the business and is supplied by original capital contributions. It assumes, further, that prior to the retirements of preferred stock indicated surplus was accumulating in excess working capital. It is worth noting that this analysis simmers down to about the same conclusion as the first interpretation offered. That is, if surplus "has been used" to retire preferred stock this means, in effect, that the junior equity has "bought out" the senior issue to the extent of surplus and that the surplus account is accordingly now represented in net working capital and fixed assets in the same manner as was the preferred stock which has been retired.

**DOWAGIAC COMPANY**  
**Comparative Statement of Funds**  
**For Calendar Years 1940 and 1941**

	<u>1940</u>	<u>1941</u>	<u>Combined</u>
Net Sales and Other Earnings	\$6,410,107	\$6,306,559	\$12,716,666
Current Outlays for Expenses, Interest, and Taxes	<u>5,930,027</u>	<u>5,920,427</u>	<u>11,850,454</u>
Earnings Available before Dividends	\$ 480,080	\$ 386,132	\$ 866,212
Disposition of Capital Assets:			
Received from Sale of Plant	\$116,190	\$ 12,000	
Less Amount Included in Earnings	<u>20,000</u>		
	\$ 96,190		
Decreases in "Investment in Other Companies" and "Deferred Charges"	<u>2,417</u>	<u>98,607</u>	<u>1,701</u>
		13,701	112,308
Reduction in Net Working Capital (see schedule *).	<u>113,953</u>	<u>538,852</u>	<u>652,805</u>
Funds Available from Operations and Conversions	\$ 692,640	\$ 938,685	\$ 1,631,325
Dividend Appropriations:			
Preferred Dividends	\$204,652	170,335	
Common Dividends	<u>159,988</u>	<u>159,988</u>	<u>330,323</u>
			694,963
Funds Available for Expansion, Investment, and Capital Retirement (including debt retirement)	<u>\$ 328,000</u>	<u>\$ 608,362</u>	<u>\$ 936,362</u>
Cost of Preferred Stock Retired	\$296,000	\$526,300	\$ 822,300
Increase in "Other Fixed Assets"	25,000		25,000
Increase in Buildings and Equipment		74,300	74,300
Increase in "Deferred Charges"		762	762
Decrease in Long-Term Debt	7,000	7,000	14,000
	<u>\$328,000</u>	<u>\$608,362</u>	<u>\$ 936,362</u>

\* Presented earlier.

## XXXIII

### COMMON-DOLLAR REPORTING

**Changing Price Levels and Accounting.** The yardstick employed by the accountant in his effort to record and interpret the financial affairs of the business enterprise is the dollar (or other monetary unit), and unfortunately this yardstick is not a stable, unchanging quantum as are the standard units used in physical measurement. The value of the dollar, its purchasing power in terms of the general price level, is a continuously fluctuating amount, and in times of major price movements such value may be doubled, or cut in half, in a period of two or three years. This means that the data resulting from the use of conventional accounting procedures and rules of valuation may be subject to serious limitation as expressions of true costs and may furnish no evidence whatever of certain important types of gain or loss.

To indicate sharply the inadequacy of unadjusted dollar data compiled during a period of marked change in the price level attention may be directed to the accounts which supposedly show the cost of plant assets. The M Co., for example, has buildings in use for which costs were incurred as follows:

January, 1915 . . . . .	\$ 20,000
June, 1920 . . . . .	30,000
November, 1925 . . . . .	15,000
November, 1930 . . . . .	10,000
February, 1935 . . . . .	15,000
January, 1940 . . . . .	10,000
	<hr/>
	\$100,000
	<hr/>

In terms of the general price level, however, and using prices of the first date as a base, the value of the dollar on the several dates given was \$1.00, 50 cents, 58 cents, 62 cents, 70 cents, and 65 cents, respectively, and to state that the Company's buildings cost 100,000 "dollars" is therefore quite misleading. Six different kinds of "dollars" are involved and to make a proper summation a preliminary conversion to a common base is necessary. In terms of dollars of January, 1915, the total cost of the property is computed as follows:



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$\$20,000 \times 1.00 =$	$\$20,000$
$30,000 \times .50 =$	$15,000$
$15,000 \times .58 =$	$8,700$
$10,000 \times .62 =$	$6,200$
$15,000 \times .70 =$	$10,500$
$10,000 \times .65 =$	$6,500$
	<u><u><math>\\$66,900</math></u></u>

Or if it is desired to state the total cost in terms of January, 1940, dollars, the computation is as follows:

$\$20,000 \times 1.54 =$	$\$ 30,800$
$30,000 \times .77 =$	$23,100$
$15,000 \times .89 =$	$13,350$
$10,000 \times .96 =$	$9,600$
$15,000 \times 1.08 =$	$16,200$
$10,000 \times 1.00 =$	$10,000$
	<u><u><math>\\$103,050</math></u></u>

The result of this second conversion, it is to be noted, happens to be in the neighborhood of the heterogeneous recorded cost.

In such a situation the depreciation estimates based on book costs are evidently a conglomeration of unlike dollars, and charging revenues representing current dollars with such a mixture gives periodic results which defy clear-cut interpretation. (See Chapter XIV.)

The importance of changes in the purchasing power of the dollar in the financial affairs of individuals is widely recognized and some attention has been directed by accountants and others to the fact that the condition and progress of the business enterprise may be vitally affected by such changes. H. W. Sweeney, in his *Stabilized Accounting*, has gone so far as to outline a scheme of supplementary recording and reporting designed to show "how accounting figures become wrong because of the fluctuating dollar, and how the errors due to this cause can mostly be eliminated."

In any attempt to deal with the problem of changing dollar value the accountant is embarrassed by the fact that the law in general fails to acknowledge the phenomenon of a variable unit of monetary measure. The accountant, in other words, is coerced to some extent by the framework of contracts and legal institutions associated with the operation of the business enterprise. He must report amount of earnings subject to income tax, total profit available for dividends, amount of income available for distribution to a particular class of investors, amount of capital stock, accumulated surplus, etc., in the first instance at any rate, in accordance with impinging legal requirements. Nevertheless the accountant is coming to be depended upon more and more as an interpreter of the essential economic conditions of the enterprise, particularly in

the fields of advising investors and framing managerial policies. And in these connections it is plain that he cannot fulfill his function adequately and remain blind to the limitations of the conventional accounts and reports in the face of a varying dollar. In some cases, without doubt, a sustained movement of the price level has a more important effect upon the welfare of the enterprise than operating activity itself, and in such circumstances it is surely the duty of the accountant to see to it that the management is made fully aware of the underlying developments.

Granting the importance of changes in the value of money to the business enterprise there remains the practical problem of effectively reporting such changes. The use of an elaborate system of supplementary accounts through which an attempt is made to revise each entry in the records at short intervals in terms of weekly or even monthly price indexes is probably seldom if ever expedient. What is usually needed is a special report supplementing the periodic statements, particularly when in comparative form, designed to trace the main effects of general price movements upon the affairs of the enterprise. Further, except in periods where the change in dollar value is sharp and prolonged as a result of emergency conditions and accompanying monetary tinkering, the case for giving detailed attention to the problem is not very strong.

**Measuring Changes in Dollar Value.** The value of the dollar is usually defined in terms of its purchasing power—its command over goods and services—as reflected in the level of prices, and changes in such value are accordingly to be observed in the course of prices. Measuring the movement of prices, however, is not a simple matter. In the first place arises the problem of the system of prices to be considered. Is the desired set of prices that comprehended under the phrase “cost of living,” and if so should attention be confined to a particular area or a particular class of consumers? Or is the desired system that of the prices of producers’ goods and services, either for the country as a whole or for some section or field of business? Strictly speaking there are as many interpretations of price movements as there are individuals or business entities involved, owing to the fact that the activities of no two persons or enterprises involve precisely the same kinds and amounts of goods and services. Assuming the first question can be dealt with satisfactorily there remains the technical problem of deciding how much weight is to be given to each price or group of prices within the system selected, a problem which has been much discussed by statisticians.

Notwithstanding these difficulties a number of price indexes have been established and are readily available which are reasonably satisfactory gauges, for most purposes, of dollar purchasing power. Sweeney, who has given more attention to the matter than any other accountant,

recommends the use of the "general index" prepared by Carl Snyder and formerly issued regularly by the Federal Reserve Bank of New York. In this series (which is compounded of industrial commodity prices at wholesale, retail food prices, composite wages, security prices, realty values, farm prices at farm, etc.) the index for the year 1913 is taken as 100 and the respective monthly price levels are stated as percentages of the base index. For example, the index for December, 1939, is stated as 154, which means that the component prices for this month were 54% higher as a whole than in 1913. The dollar value for each month in terms of the 1913 price level is found by dividing the base index, 100, by the index for the month in question. Thus the dollar of December, 1939, is worth  $100/154$ , or 65% of the dollar of 1913. By means of such a series of index numbers, further, the relative dollar values at particular dates can be readily computed in terms of the index of any other date selected as a base. For example, if the index for December, 1939, be taken as a base the dollar of November, 1930, when the index stood at 161, is  $154/161$ , or 96% of that of the base date.

This discussion raises another question. Should the dollars represented by a series of entries in an account be converted through the use of the index of an early period or that of a recent period as a base? No hard and fast answer can be given. It seems fair to assume, however, that throughout the business field the dollar is commonly thought of in terms of the prevailing price level. In other words, while conceptions of the monetary unit are often anything but clear-cut there is reason for believing that most persons and business managements adjust their impressions of the dollar rather rapidly as prices rise or fall. It follows that reports showing converted dollars are likely to be somewhat more understandable if expressed in the price level of a late date.

The extent of the fluctuations in the purchasing power of the dollar for the last sixty years as shown by the series referred to above is indicated roughly by the following table:

<i>Period</i>	<i>Range of Monthly Index Numbers</i>	<i>Per Cent Variation*</i>
1881-1885	76- 89	8
1886-1890	75- 79	3
1891-1895	70- 79	6
1896-1900	70- 80	7
1901-1905	80- 89	5
1906-1910	90- 98	4
1911-1915	96-108	6
1916-1920	110-199	29
1921-1925	155-177	7
1926-1930	158-183	7
1931-1935	123-157	12
1936-1939†	150-163	4

\* Per cent of half the range to average of lowest and highest index numbers for period.

† The computation of this series was discontinued at the end of 1939.

Examination of this table shows that the sharpest movement of prices for any five-year period of the time covered was in 1916-1920. For the thirty years 1881-1910—the prewar era—the extreme range was from 70 to 98; this was evidently a period of comparative stability of prices.

Notwithstanding the marked instability of the dollar shown by this abstract of indexes of general prices, a study of the figures suggests that the use of a complete system of “stabilized accounting” for the entire period, for all businesses, would hardly have been worth while, particularly in view of the relatively short lives of most industrial resources and the extent to which accounting at the best requires the use of estimates.

**Converted Dollar Cost versus Replacement Cost.** The distinction between conversions of recorded costs to common dollars and revaluations based on the replacement costs of specific assets was given some attention in the discussion of plant appraisals in Chapter XIV. In this connection the matter deserves emphasis from a more general point of view. Reduction of the heterogeneous dollars represented by the balances in the asset accounts to a common denominator is a process which seeks to give full effect to the proposition that cost in the sense of economic sacrifice or commitment is the proper measure of value for accounting purposes (subject, of course, to depreciation and other offsets). The purpose of conversion, in other words, is to make appropriate corrections in recorded figures in view of the change in the value of money as reflected in the general price level. Revision of accounts in terms of particular replacement costs, on the other hand, represents a definite shift from the basis of original cost to that of current cost; it is a process which takes cognizance of the movement of the individual prices of the factors comprehended in the resources of the enterprise and completely ignores—in principle—the problem raised by the changes in the general purchasing power of the monetary unit.

Assume, for example, that an asset is acquired at a cost of \$10,000 with the index of the general price level standing at 100, and that one year later the replacement cost is the same as original cost, \$10,000, although the index of prices as a whole has moved up to 110. In this situation an appraisal of the asset on the basis of replacement cost will result in no adjustment while the correction of recorded dollar cost in view of the change in the value of money will result in a write-up to \$11,000 (using the last index as a base). Or if the asset cost \$10,000 with the index at 100 and one year later the replacement cost were \$11,000 with the price index unchanged, recognition of replacement cost would involve a write-up while no adjustment of dollar cost would be required.

But such examples are not typical of actual conditions, particularly for periods of considerable length. As was pointed out in Chapter XIV

a sustained movement of the prices of the numerous classes of materials and services represented in the asset accounts of the large enterprise is likely to correspond, in considerable measure, to the movement of the general price level. This means that a revision of accounts based on an appraisal will normally be in the same direction as a correction designed to recognize a change in dollar value, although the amount of the adjustment is usually greater in the case of the appraisal since prices represented by the plant or inventory costs of business enterprises are subject to wider fluctuations than most of the other groups of prices represented in the general price level. In recording and interpreting appraisal data, as explained in Chapter XV, the excess of the write-up or write-down, if any, over the change which would result from conversion into current dollars might well be segregated and given special treatment.

For such assets as plant and inventory it may be argued that conversion of unlike dollar costs to a common base is less important to operating management than periodic recognition of the effects upon the particular assets held of changes in costs or prices as revealed by current transactions involving similar resources. That is, to business management the most significant evidence of effective value is presumably not what a productive factor did cost either in terms of dollars as originally recorded or as converted but what it would cost if acquired at the date of the report (adjustment being made for depreciation and other offsets in both cases).

**Working Capital and Changing Dollar Value.** Losses and gains in purchasing power, not fully disclosed by conventional accounting methods, arise in connection with the various elements of working capital as a result of general price movements. Cash is ordinarily assumed to be subject to variation only with respect to the number of dollars involved, but the fact is that the purchasing power of any given amount of cash increases and declines with a fall or rise, respectively, in the level of prices. Substantially the same may be said of accounts receivable and all other claims to dollars; although fixed in amount (ignoring adjustments for interest, bad debts, etc.) they actually have variable values due to the instability of the monetary unit. Accounts payable and other liabilities expressed in dollars, and maintained without revaluation in the accounts, are likewise subject to change in terms of the amount of purchasing power required for their satisfaction. In this case, of course, the effect of the fluctuations upon the welfare of the enterprise is always the opposite of that arising from changes in the value of cash and receivables.

It should be understood that all elements of working capital consisting of cash itself or of unqualified dollar contracts receivable or payable are

continuously and automatically converted into current dollars. A bank balance of \$50,000, for example, is correctly reported at that figure, regardless of the course of prices during the period of its accumulation; at all times such a balance represents 50,000 legal dollars and can command goods and services to this amount at current prices. Similarly a liability of \$50,000 in notes payable is a claim for the stated amount of dollars, without reference to their value, and is accordingly a "self-adjusting" element. This does not mean that the amount of periodic loss or gain in purchasing power is disclosed by the automatic conversion. To determine this fact it is necessary to trace the recorded amounts from the beginning to the end of the period in terms of like dollars.

The fact that the gain or loss on payables is an offset to the loss or gain on cash and receivables deserves emphasis. Suppose, for example, that a particular concern has a bank balance of \$100,000 and owes \$50,000 on open account. As long as this condition obtains the liability represents a form of "hedge" against a change in the purchasing power of cash. If at the outset the index of prices stands at 100 and at the end of the period is 120 the purchasing power of the bank balance has been decreased by one-sixth,  $\$16,666\frac{2}{3}$  in terms of dollars as of the first date and \$20,000 in terms of dollar value as of the second date. This loss is partially offset, however, by the fact that the amount of purchasing power required to satisfy the liability of \$50,000 has been reduced by  $\$8,333\frac{1}{3}$  in old dollars and \$10,000 in new dollars. Similarly if the price level had fallen the gain in cash purchasing power would be accompanied by an increase in the amount of such power required to meet or support the outstanding obligations.

Securities held as current assets which are shortly collectible in dollars may be said to have a value as a reservoir of purchasing power which rises and falls with the value of the dollar as reflected in generally falling or rising prices. A form of loss or gain, accordingly, may appear in connection with such resources, as in the case of accounts receivable, aside from any question of adjustment due to interest accruals or a changed status for the particular investment. Securities such as stocks or long-term bonds which are readily marketable, and on this account are included in current assets, can hardly be interpreted as current dollar claims. In this case, therefore, recorded costs are not automatically adjusted to current dollar values and a process of computation is necessary to convert such costs into their equivalents expressed in terms of a changed measuring unit, and to disclose any resulting loss or gain. Securities of this class, however, are subject to the changes in values which are the reflection of specific market prices, and it is the realizable value as shown by such market prices, rather than cost converted by reference to a

general index, which is the significant measure of the amount of buying power involved at a particular point. The question of the accounting recognition of changing market prices of securities held was discussed in Chapter VII.

Inventoriable assets are usually included in current resources as a part of the structure of working capital. Such assets, however, are neither dollars nor claims to dollars; they are technical productive factors, and are recorded—in the first instance at any rate—at cost. Inventories are affected by particular price movements, and replacement costs and other evidences of current market value are often introduced into the accounts, as explained in earlier chapters. A genuine change in the value of inventory in the sense of purchasing power occurs when the specific price movements related to the inventory do not correspond to the general movement. Since the inventory is a current asset the need for conversion of recorded costs for the purpose of expressing such costs in current dollar values is less marked than in the case of plant; except in times of sharp changes in the level of prices as a whole the recorded cost of the inventory may be expected to approximate roughly the cost measured in terms of dollars as of the inventory date.

**Effect of Changing Dollar on Fixed Accounts.** With respect to the effect of a change in the general price index fixed assets such as land and buildings are somewhat similar to the inventories. The plant accounts represent objective factors of production rather than funds of dollars, and are accordingly subject to valuation in terms of the movements of particular prices. See discussion above of the relation of changing replacement costs to general price fluctuations. As has been explained, however, the recorded cost of plant is often an amalgamation of unlike dollars and conversion to a common price level may be necessary to a clear-cut presentation of true cost.

Bonds and other long-term liabilities, with the collapse of gold clauses and other special arrangements, have become in general unqualified claims to lawful dollars, and their significance to the enterprise accordingly varies directly with the change in the value of money. Herein lies a very important long-run source of gain or loss, not brought to light as such by ordinary accounting methods and often not clearly recognized by either investors or business managements. Emitting a large issue of bonds is equivalent to engaging in a serious speculation in money. If the value of the dollar falls the amount of purchasing power necessary to retire the obligation is correspondingly reduced, and if dollars become more valuable, as reflected in the price level, a larger amount of actual resources must be devoted to the liquidation of the liability. Suppose, for example, that a corporation puts out an issue of ten-year bonds

amounting to \$100,000,000 at a time when the price index stands at 100, and that at maturity when the debt is paid the index has advanced to 200. The result of this transaction is an indubitable gain of \$50,000,000 measured in terms of dollars as of date of issue and \$100,000,000 expressed in money value as of date of maturity. And similarly if the bonds were issued when the index stood at 200 and were paid in dollars represented by an index of 100 a genuine loss of purchasing power amounting to \$100,000,000 in prices of date of issue or \$50,000,000 in prices of date of payment would have been suffered. When the situation is considered carefully, including the danger of complete loss to stockholders as a result of default during a period of lean years, the practice of employing long-term dollar contracts to finance business undertakings appears in a rather unfavorable light.

The loss or gain accruing on bonds outstanding as a result of changes in the value of money cannot be viewed as a direct hedge in connection with the fluctuation of plant values, since plant accounts do not represent claims to dollars.

The effect of the changing value of the dollar upon the proprietary equity is the resultant of the effects on assets and liabilities. In view of the fact that the capital account is usually interpreted as a permanent element, subject to increase only when additional investment is made and to decrease only after surplus is exhausted, it is expedient to treat the recorded amount of this section of proprietorship as representing dollars as of the date of issue, and use surplus as the reconciling account.

**Unrealized and Realized Gains and Losses.** Unrealized gain is commonly defined as the increase in the value of an existing asset or resource measured by reference to the current market value of like assets or to the current market prices of the component factors of goods and services represented in the cost of the asset. Unrealized loss is defined as the decline in value of an existing asset measured in this manner. Realization of gain or loss is usually considered to occur when the resource in question is disposed of by sale or other process.

These conceptions can be readily applied to the gains and losses resulting from changes in the value of the dollar. For example, the gain resulting from an increase in the purchasing power of the dollar subsequent to the acquisition of a sum of cash is unrealized so long as the cash continues to be held, and is realized—brought to a final determination—when the fund in question is expended. Similarly the gain or loss in purchasing power attaching to accounts receivable or other claims to dollars as a result of a falling or rising price level is unrealized so long as the resource stands in its original form and is realized upon collection or other disposition.



As in the case of gains or losses gauged by specific price movements, the amount of an unrealized gain or loss gauged by the general price movement is subject to change between the date of measurement and the date of final realization. Indeed, the entire amount of an unrealized gain or loss as reckoned at a particular time may be canceled before the date of realization and may even be replaced by a change in the opposite direction. The point is particularly important in the case of long-lived factors. Thus the unrealized gain or loss which appears to attach to a particular fixed asset on a specific date is unlikely to approximate the total amount of gain or loss finally realized, even if it be assumed that realization is at least in part a gradual process associated with periodic recognition of depreciation. Similarly the amount of unrealized gain or loss attaching to a long-term bond outstanding determined by computing the current redemption cost expressed in current dollars at some date many years before payment of the obligation and comparing such cost with the purchasing power involved at date of issue, also expressed in current dollars, will presumably not approximate the gain or loss in purchasing power actually realized upon date of payment. Such considerations should be borne in mind in attempting to appraise the merits of any plan which calls for systematic computation and reporting of the effects of changing dollar value upon recorded data.

Assuming that determinations of gain or loss in purchasing power committed are in order in a specific situation, it seems clear that an attempt should be made to segregate the unrealized portion of the total gain or loss computed for the particular period.

**Conversion of Balance-Sheet Data Illustrated.** The M Co. begins business on January 1 with cash of \$15,000.00, inventories of \$20,000.00, equipment of \$5,000.00, accounts payable of \$10,000.00, and capital stock of \$30,000.00. For the sake of simplicity all of these balances are assumed to be the result of transactions occurring on the opening day. The index of prices at this point stands at 100. On December 31 the Company's balance sheet shows the following: cash, \$10,000.00; accounts receivable, \$20,000.00; inventories (at cost), \$40,000.00; equipment (at cost), \$7,500.00; allowance for depreciation, \$625.00; accounts payable, \$35,000.00; capital stock, \$30,000.00; surplus, \$11,875.00. The index of prices at this time is 124, and the index for each half month through the year is one point higher than the preceding index beginning with January 15 at 101. The following assumptions are made with respect to balances of December 31 and activities for the year: (1) after the month of January all purchases, sales, liabilities incurred, expenditures, receipts, etc., occur at a uniform level throughout the year, except that the additional equipment purchased at a cost of \$2,500.00 is acquired on July 1; (2) all

elements pass through the business in regular order, the oldest item in each case being used or retired first; (3) the balances of cash, accounts receivable, and accounts payable originate in December; (4) the inventory consists of December purchases, \$35,000.00, and November purchases, \$5,000.00; (5) there have been no disbursements to stockholders. Under these conditions the comparative balance-sheet data are converted into December dollars as shown by the following:

## M COMPANY

Comparative Balance Sheet, January 1 and December 31, 19\_\_ with  
Conversions into December Dollars  
(Indexes: Jan. 1, 100; Dec. 31, 124; Average for Year, 112)

	<i>Balances per Books</i>		
	<i>January 1</i>	<i>December 31</i>	<i>Increase</i>
Cash . . . . .	\$15,000.00	\$10,000.00	\$ 5,000.00 *
Accounts Receivable . . . . .	—	20,000.00	20,000.00
Inventories . . . . .	20,000.00	40,000.00	20,000.00
Equipment . . . . .	5,000.00	7,500.00	2,500.00
Allowance for Depreciation . . . . .	—	625.00 *	625.00 *
	<u>\$40,000.00</u>	<u>\$76,875.00</u>	<u>\$36,875.00</u>
Accounts Payable . . . . .	\$10,000.00	\$35,000.00	\$25,000.00
Capital Stock . . . . .	30,000.00	30,000.00	—
Surplus . . . . .	—	11,875.00	11,875.00
Conversion Adjustment . . . . .	—	—	—
	<u>\$40,000.00</u>	<u>\$76,875.00</u>	<u>\$36,875.00</u>

	<i>Balances in 12/31 Dollars</i>		
	<i>January 1</i>	<i>December 31</i>	<i>Increase</i>
Cash . . . . .	\$18,600.00	\$10,000.00	\$ 8,600.00 *
Accounts Receivable . . . . .	—	20,000.00	20,000.00
Inventories . . . . .	24,800.00	40,366.52	15,566.52
Equipment . . . . .	6,200.00	8,967.86	2,767.86
Allowance for Depreciation . . . . .	—	758.39 *	758.39 *
	<u>\$49,600.00</u>	<u>\$78,575.99</u>	<u>\$28,975.99</u>
Accounts Payable . . . . .	\$12,400.00	\$35,000.00	\$22,600.00
Capital Stock . . . . .	37,200.00	37,200.00	—
Surplus . . . . .	—	11,875.00	11,875.00
Conversion Adjustment . . . . .	—	5,499.01 *	5,499.01 *
	<u>\$49,600.00</u>	<u>\$78,575.99</u>	<u>\$28,975.99</u>

\* Deduction.

A few comments on the calculations made in the preparation of the schedule are in order. The book balances on January 1 are converted by multiplying in each case by 124/100, the percentage of the index on December 31 to that of January 1. The balances of the self-adjusting elements—cash, accounts receivable, and accounts payable—on Decem-

ber 31 are already expressed in dollars of that date and hence require no conversion. The cost of the inventory on December 31 is converted to current dollars by multiplying the amount originating in December, \$35,000.00, by the index on December 31, 124, divided by the average index for December, 123, and adding to this result the cost of the amount acquired in November, \$5,000.00, multiplied by the ratio of the final index, 124, to the index for November 30, 122. (The portion of November purchases on hand was presumably acquired toward the end of the month.) The resulting figure of \$40,366.52 is not greatly different from the recorded cost of the inventory. The converted equipment account on December 31 is the sum of \$6,200.00, the amount of the cost of the opening balance in terms of the price level at the end of the year, and \$2,767.86, the cost of the addition of \$2,500.00 on July 1, when the index stood at 112, multiplied by  $124/112$ . Of the credit to the depreciation allowance for the year, 10% of the original balance plus 5% of the addition, that applicable to the opening balance, \$500.00, is converted by multiplying by  $124/100$ , and that applicable to the addition is converted by multiplying by the ratio  $124/112$ . The result, \$758.39, is the sum of 10% of the converted original balance, \$620.00, plus 5% of the converted cost of the addition, \$138.39. The capital stock item of \$30,000.00 is converted through the use of the ratio  $124/100$ . The surplus, all originating during the year, is permitted to stand at the book figure so that the net amount of the adjustment resulting from a comparison on a common-dollar basis can be shown in one figure. If the surplus earned for the year were viewed as an element subject to separate conversion the reasonable ratio to apply under the assumed conditions would be that represented by the index number of December 31 divided by the average for the year.

The comparative book figures show an increase in the stock equity of \$11,875.00. The comparative converted data show an increase in the stock equity, after deducting the amount of the "conversion adjustment," of \$13,575.99. The difference of \$1,700.99 is the net amount by which the assets have been "written up." However, the converted figures also show that of the increase in proprietorship the amount of \$7,200.00 is absorbed in restating the investment at the beginning of the year in terms of year-end dollars, which leaves a balance of \$6,375.99 as the net "surplus" on the converted basis—only 54% of the book surplus. The reported net profit, in other words, is found to consist in considerable measure of dollars necessary to maintain the capital investment intact in terms of purchasing power. This point might well receive emphasis in a discussion of the affairs of the company even if it were not considered necessary to explore the effects of the change in the value of the dollar in detail.

According to the statement of converted data the increases and decreases in balances as they appear on the books are considerably in error in a number of instances from the standpoint of comparison on a common-dollar basis. The statement brings out the fact, moreover, that the recorded figures for equipment cost and depreciation do not correctly express such factors in current dollars, notwithstanding the short period of time involved.

Conversion of comparative balance-sheet data at the best discloses only net effects. The process also fails to indicate the extent to which the changing general price level through the period has influenced profits as reported by the books, and makes no distinction between realized and unrealized gain or loss in purchasing power.

**Conversion of Income-Sheet Data.** The revenues and expenses of the single income statement, in so far as they accrue uniformly throughout the period or are subject to offsetting fluctuations, are already roughly expressed in common dollars—the average of the indexes in effect for the period. On occasion, however, it may be desired to convert the data of the statement into dollars as of the end of the year or some other basic date. To illustrate, assume that the income statement covering the first year's operations of the M Co. (see preceding example) appears, in condensed form, as follows:

Sales . . . . .		\$595,000.00
Merchandise Cost of Sales . . . . .	\$390,000.00	
Service Costs . . . . .	192,500.00	
Depreciation . . . . .	625.00	
	<hr/>	
Total Expenses . . . . .		583,125.00
	<hr/>	
Net Profit . . . . .		\$ 11,875.00
		<hr/>

Multiplying sales, merchandise cost of sales, and service costs by the ratio 124/112, and converting depreciation by applying the ratio 124/100 to the amount of \$500.00 and 124/112 to the amount of \$125.00, results in the following estimated statement in terms of year-end dollars:

Sales . . . . .		\$658,750.00
Merchandise Cost of Sales . . . . .	\$431,785.71	
Service Costs . . . . .	213,125.00	
Depreciation . . . . .	758.39	
	<hr/>	
Total Expenses . . . . .		645,669.10
	<hr/>	
Net Profit . . . . .		\$ 13,080.90
		<hr/>

For convenience the entire depreciation accrual for the year is charged to revenues. Since the data are available this factor is converted in terms of the actual entries in the equipment account. More precise conversion

of sales and other elements would of course be possible. This converted statement, it should be understood, does not bring to light the amount of loss or gain resulting from the change in the price level taking place during the year; it simply attempts to show the recorded figures of the income sheet expressed in dollars of December 31.

The depreciation charge in this example is a small item, and represents a portion of the cost of assets acquired at the beginning of and during the current year. Where depreciation is relatively large and is derived from numerous asset costs running back over a period of years, the amount of the recorded charge to operations is likely to differ considerably from the converted figure. Depreciation, in other words, represents the point at which recorded costs in general vary most sharply from converted costs. It should be recognized that the precise conversion to common dollars of a depreciation deduction which is composed of many elements, associated with a long list of price indexes, requires detailed information as to additions and retirements and involves a considerable amount of computation.

Conversion of income-sheet data to common dollars is useful in the interpretation of the trends shown by ordinary comparative reports. For an illustration assume the comparative operating data of the M Co. for the first two years of the Company's history are as follows:

### M COMPANY

#### Comparative Income Sheet Years Ended December 31

	<i>First Year</i>	<i>Second Year</i>	<i>Increase</i>	
			<i>Amount</i>	<i>Per Cent</i>
Sales . . . . .	\$595,000.00	\$654,500.00	\$59,500.00	10
Merchandise Cost of Sales . . . . .	\$390,000.00	\$429,000.00	\$39,000.00	10
Service Costs . . . . .	192,500.00	207,900.00	15,400.00	8
Depreciation . . . . .	625.00	1,000.00	375.00	60
Total Expenses . . . . .	\$583,125.00	\$637,900.00	\$54,775.00	9
Net Profit . . . . .	\$ 11,875.00	\$ 16,600.00	\$ 4,725.00	40

The indexes for the first year are as assumed in the preceding section; for the second year the average index is 136 and the index on December 31 is 148. The only change in the equipment account for the second year is an addition on January 1 of \$2,500.00. Under these conditions the comparative data shown by the regular statements, converted into dollars represented by the index 148, become:

## M COMPANY

## Converted Comparative Income Sheet

Base Index 148

(Indexes for first year: Jan. 1, 100; Dec. 31, 124; Average, 112.

Indexes for second year: Jan. 1, 124; Dec. 31, 148; Average, 136)

	<i>First Year</i>	<i>Second Year</i>	<i>Decrease</i>	
			<i>Amount</i>	<i>Per Cent</i>
Sales . . . . .	\$786,250.00	\$712,250.00	\$74,000.00	9
Merchandise Cost of Sales . . . . .	\$515,357.14	\$466,852.94	\$48,504.20	9
Service Costs . . . . .	254,375.00	226,244.12	28,130.88	11
Depreciation . . . . .	905.18	1,368.75	463.57 *	51 *
Total Expenses . . . . .	\$770,637.32	\$694,465.81	\$76,171.51	10
Net Profit . . . . .	\$ 15,612.68	\$ 17,784.19	\$ 2,171.51 *	14 *

\* Increase.

The first three figures for the second table are derived by multiplying sales, merchandise cost, and service costs for the first and second years by the ratios 148/112 and 148/136, respectively. The depreciation figure for the first year is converted by multiplying the amount of \$500.00 by 148/100 and the amount of \$125.00 by 148/112; the figure for the second year is converted applying the ratio of 148/100 to the amount of \$500.00, 148/112 to \$250.00, and 148/124 to \$250.00.

According to the unconverted data the volume of business in the second year increased 10% and expenses 9%, with an increase in net of nearly 40%. When the data are placed on a comparable dollar basis, however, it is found that sales actually decreased 9%, that expenses decreased 10%, and that the increase in net was only 14%.

**Tracing Gain or Loss of Buying Power.** The gain or loss in buying power associated with cash, accounts receivable, and accounts payable in the example dealt with in the preceding sections can be estimated after a fashion from the balance-sheet data, without reference to the accounts. Assuming that a cash fund of \$10,000.00, equivalent to the balance on December 31, has been maintained by the M Co. throughout the year, the amount of loss of purchasing power on this account, measured in year-end dollars, is \$2,400.00 (124/100 times \$10,000.00, less \$10,000.00). Assuming, further, that receipts and disbursements each month are equal and made simultaneously except for the disbursement of the excess of the book balance on January 1 over that of December 31, \$5,000.00, and that this amount is expended at a uniform rate, the only additional loss of cash buying power is that attaching to the decline in the cash balance, or \$664.29. (The amount is expended at prices represented by the aver-

age index number 112; therefore the loss measured in this index is  $112/100$  times \$5,000.00, or \$5,600.00, less \$5,000.00; multiplying the result of this computation, \$600.00, by  $124/112$  gives \$664.29, the loss measured in dollars of December 31.) The total shrinkage in purchasing power resulting from holding and handling cash is therefore \$3,064.29. The loss on the accounts receivable, assuming that the balance on December 31—in this case the amount of the increase for the year—originates at a uniform rate throughout the year and ignoring the effect of all collected accounts, is readily found to be \$2,142.86 ( $124/112$  times \$20,000.00, less \$20,000.00). Offsetting these losses, totaling \$5,207.15, is the gain attaching to accounts payable. Assuming that the balance on January 1 persists throughout the year (in amount, without regard to the component items) the gain in dollars of December 31 is \$2,400.00 ( $124/100$  times \$10,000.00, less \$10,000.00), and if the increase of \$25,000.00 is assumed to be spread uniformly through the year, and the effect of paid accounts is ignored, the gain on this element is \$2,678.57 ( $124/112$  times \$25,000.00, less \$25,000.00). This gives a total gain on current liabilities of \$5,078.57. Comparison of the losses and gains derived in this manner shows that the net loss of buying power in the dollar funds represented in working capital has been negligible.

Unrealized losses and gains are not segregated by such computations. Aside from this point the method of estimating just outlined may be objected to, particularly in the case of accounts receivable and payable, on the ground that these working-capital elements are “revolving funds” which follow the order of first-in, first-out, and “turn over”—according to the conditions laid down in data of the example as given earlier—at least once a month. To meet these objections it would be necessary to trace the changes in the accounts under consideration in terms of monthly entries and prepare an appropriate conversion schedule for such entries. Cash may be used for illustrative purposes. Assume that the cash account of the M Co. for January shows total debits of \$40,000.00 (including opening balance of \$15,000.00) and total credits of \$19,000.00, and that each month thereafter the receipts amount to \$50,000.00 and the disbursements to \$51,000.00, which leaves a balance on December 31 of \$10,000.00. The tabulation on page 747 shows the computation of loss of purchasing power under these conditions.

The indexes of the middle of the month are used throughout in converting receipts and disbursements, although a still more refined conversion employing estimated indexes for each half month or week would be possible. The first column of “converted” figures shows what the various batches of cash received “cost” or were worth in terms of the December 31 price level; the second “converted” column shows how much buying

**Conversion of Cash Account to Dollars of December 31 (Index 124)**  
**Showing Estimated Loss in Buying Power**

\* Including balance, December 31, which is not converted.



power was exerted when the various batches were expended, expressed in the relation of the year-end index as a base to the indexes prevailing when the expenditures were made. The result of the computation is an estimated loss of purchasing power resulting from handling cash through the year of \$3,857.54. This is the total loss, realized and unrealized. The unrealized loss is that attaching to the unexpended balance of \$10,000.00 and under the conditions of cash movement assumed amounts to only \$81.30 ( $124/123$  of \$10,000.00, less \$10,000.00).

Similar computations might readily be made covering the component entries in accounts receivable and accounts payable.

The gain or loss in purchasing power associated with fixed liabilities can be estimated directly from comparative balance-sheet data provided there have been no changes in outstanding amounts during the period under consideration. Such gain or loss, it should be recalled, is unrealized until the obligation involved is paid or retired.

As explained earlier inventories and plant assets are subject to specific price movements, and if such movements are recognized in the accounts the amount of the adjustment required to restate the recorded figures in terms of current purchasing power is measured by the extent to which the movement of the specific index lags behind or exceeds that of the general index. If the specific price movements are ignored, and the accounts involved (including the allowance for depreciation) are maintained strictly in terms of original recorded costs, the computation of the adjustment arising through the process of converting the entries to common dollars follows the general pattern outlined above.

### QUESTIONS

1. "In many cases the recorded cost of plant is a meaningless hodgepodge of unlike units." Explain. How may such an account be corrected?
2. "In view of the fact that the law fails to recognize the variable character of the dollar the accountant cannot do so." Discuss.
3. How are changes in the value of the dollar measured? Indicate the problems which must be met in the development of a suitable index.
4. In the conversion of comparative financial data to common dollars what period should be selected as a base? Illustrate the computation necessary to convert dollars of one period into dollars of another.
5. With an example explain precisely the distinction between revaluation of specific assets on the basis of replacement cost or market value and conversion of recorded dollars to a common base. Discuss the relative importance of the two processes.
6. "Strictly speaking there is no loss or gain attaching to an unimpaired resource so long as the specific price movement coincides with the general movement." Do you agree? Discuss.
7. With an illustration show how an enterprise may suffer an unrecorded loss

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in effective working capital as a result of a general price movement. In what sense are liabilities a "hedge" in this connection?

8. "In the case of cash and accounts representing dollar contracts the process of conversion to current dollars is automatic and continuous." Explain.

9. "Emitting an issue of long-term bonds constitutes a serious speculation in the value of money." Illustrate.

10. When is a loss in purchasing power associated with cash realized? Answer same question for a bond contract outstanding.

11. Outline the procedure required in converting comparative balance-sheet data into common dollars.

12. Under what circumstances may a recorded surplus, resulting from standard accounting practice, fail to show a genuine increase of corresponding amount in the equity of the stockholder?

13. Show that conversion of comparative income-sheet data may be useful in the interpretation of the trend of activity.

14. How would you trace the loss or gain attaching to accounts payable through a year characterized by a general movement in prices? Explain fully.

## XXXIV

### CONSOLIDATED STATEMENTS

**Conditions of Affiliation.** Enterprises which are distinct from a legal point of view are often closely affiliated with respect to ownership and operating management. An important type of corporate affiliation is found where one or more of the divisions or branches of a major business is separately incorporated. Here the relation of the subsidiary company to the principal corporation is very similar to that of the unincorporated branch to the home office. (See discussion of branch accounts in Chapter XXIX of *Essentials of Accounting*.) The subsidiary is nominally a separate concern, with its own capital structure and earning power and a distinct system of records and accounts, but the association is so close that for certain purposes the corporate lines of cleavage may reasonably be ignored. A second type of affiliation is that brought about through the use of the holding company. In its extreme form the holding company is organized solely for the purpose of controlling one or more operating companies and carries on no activities in its own right other than those incident to stock ownership. In other cases the controlling corporation is an important operating enterprise as well as a holding company. (American Telephone and Telegraph Co. is a well-known example.) For the purpose of this discussion a distinction should be drawn between a corporation organized to control other companies and a concern which is primarily an investment company.

The parent or dominant company may own all of the stock of a subsidiary or only a controlling interest. See discussion later of bearing of degree of ownership on consolidated reporting.

Corporations sometimes become associated from an ownership standpoint in more unusual ways. Occasionally there is mutual ownership between two or more companies to a marked degree, with no one concern standing in the clear-cut position of dominant company. M Co., for example, may own 65% of the stock of R Co., and R Co. in turn may own 70% of the stock of M Co. An indirect method of association is found where there are no major intercompany holdings but one individual—or a connected group of individuals—owns a controlling interest in each of a number of companies.

Affiliated corporations are generally engaged in the same or related fields of business. Thus a group of companies, controlled through a main organization, may all be in the business of manufacturing and distributing food products. In some cases the associated enterprises represent an integrated series of activities ranging from the extraction of the basic raw material to the sale of manufactured product. On the other hand there are many instances of concerns in very dissimilar fields which are affiliated with respect to ownership.

Outside the corporate field, two or more distinct business undertakings are often affiliated in that ownership resides in one individual or firm.

**Need for Consolidated Statements.** In general each distinct corporation must have a separate scheme of accounts and periodic reports. Such separate accounts and reports, however, are not always adequate to meet the requirements of owners and managers of a group of affiliated enterprises. Wherever there is common ownership and unified administration there is likely to be needed a showing of operations and condition for the group viewed as a whole. Consolidated statements are designed to meet this need, and their use has been greatly extended in recent years.

The essential purpose of consolidated statements, as just suggested, is to display the financial position and earning power of two or more associated enterprises as a single undertaking. Consolidated statements disregard legal lines of cleavage and emphasize financial and managerial unity. In such reports intercompany accounts and relationships are eliminated and a picture is drawn of the aggregate enterprise in its relation to the external business community.

It follows that consolidated statements are useful primarily to the dominant and controlling interest—the management and stockholders of the parent company—and should be prepared from this point of view. In general the minority stockholders (if any) of a subsidiary company are concerned only with the affairs of such corporation; their interests are not directly affected by developments with respect to the income or financial standing of other subsidiaries or of the corporate stockholder which directs their enterprise. The same may be said of the creditors of a particular subsidiary company. This comment assumes that the relationships between the associated companies are on a sound commercial basis, and does not deny the importance of the influence which may be exercised by the controlling organization through managerial and financial channels.

Consolidated statements are also of some importance to bondholders and other creditors of the holding company.

**When to Consolidate.** Opinions vary as to the percentage of ownership required to justify the preparation of consolidated statements, but it

is usually agreed that there is little point to consolidation where fifty per cent or more of the voting power is represented by outside stockholders. In general the actual circumstances, rather than hard and fast rules, should be permitted to settle the matter. Where the balance of the stock is widely distributed a holding of twenty to twenty-five per cent—or even less—may assure effective control over a long period, and if some *proper purpose* can be served by the use of consolidated reports in such a situation the fact of a limited affiliation from the standpoint of stock ownership should not be allowed to stand in the way of their preparation.

The extent to which affiliated companies are related in a business way also has a bearing on the use of consolidated statements. A composite picture of the affairs of a group of companies which are closely integrated or allied from an operating standpoint obviously has more significance than a joint report for a heterogeneous collection of companies. In fact where the concerns are highly dissimilar the preparation of consolidated statements may be unwise even if the affiliation is complete as far as ownership and control are concerned. If, for example, a mail-order house happens to own all the stock of a lead mine (and situations just as outlandish can be found), combined statements are likely to be more misleading than helpful.

Consolidation may be of doubtful advantage for groups of companies of such character and affiliated in such manner that there is no one company which stands out clearly as the dominant organization.

**Limitations of Consolidated Reports.** The limitations of composite statements should be understood, particularly in view of the rapid and somewhat indiscriminate extension of their use. A consolidated report does not reflect the conditions of any distinct legal entity, a fact not always made clear in practice. Consolidated statements should be viewed as a supplementary device, not as a substitute for the conventional exhibits of the affairs of either the parent or the subsidiary companies. Thus the stockholders and creditors of the controlling corporation are immediately concerned with the statements of their company as an independent organization, and only secondarily with the joint picture of the affiliated enterprises. The earnings of the subsidiary are not, literally, the income of the parent, and the assets of the subsidiary are definitely not available to meet the claims of creditors of the parent. This means that the practice followed by many large companies of publishing no statements other than the combined reports is unfortunate. In any event the statements of the parent company proper should be presented, with the consolidated picture added where this seems desirable. Inclusion of the separate reports of major subsidiaries is also expedient in some situations. It is true that the balance sheet and income report of a large

operating company are not materially affected by amalgamation with the exhibits of a relatively small subsidiary, but by the same token little is to be gained by the substitution of consolidated statements for the statements of the major company. And where the parent concern is in whole or in large degree of the holding company type, with one or more important subsidiaries, permitting composite presentations to eclipse the showing of the main corporation in its own right is decidedly objectionable.

Mention should be made in particular of the limitations of financial ratios—designed to throw light on immediate and ultimate solvency, operating efficiency, support for particular equities, and other matters—which are drawn from consolidated statements. Combining the data of a very strong current position with those of a very weak position, for example, may result in an average showing not typical of either company and hence likely to be misleading. In general ratios should be computed only in terms of the reports of specific companies, and where it is deemed necessary to apply this line of interpretation to consolidated statements the results should be used with a full knowledge of their limited significance.

In connection with the preparation and certification of consolidated statements it is clearly the duty of the accountant to point out any special sore spots or danger signals which would otherwise be obscured. This is desirable even where the composite picture accompanies the separate statements of the constituent companies.

It has been suggested in some quarters that the most desirable method of reporting the financial position of closely associated companies from the point of view of the controlling interest is to supplement the balance sheet of the dominant corporation by schedules summarizing the assets and liabilities of the subsidiaries in lieu of the consolidated balance sheet. This suggestion, although running counter to the accountant's penchant for balancing, has some merit. Through the use of special tabulations of the data of the subordinate companies, in the form most suited to the particular situation, some technical complications involved in formal consolidation can be avoided or minimized, and it is also possible in this way to emphasize essential facts and relationships. On the other hand it may be argued that such tabulations should be viewed as a means of strengthening conventional consolidated reports rather than as a substitute.

The general conclusion to be drawn is that although consolidated statements have a legitimate function in certain situations they do not take the place of the reports of constituent companies and should be employed with discrimination and with a full recognition of their limitations.

**Consolidation under Simple Conditions.** For an example of the simplest possible circumstances of consolidation assume that the M Co., with assets of \$125,000, liabilities of \$10,000, capital stock of \$100,000, and surplus of \$15,000, organizes a subsidiary, the R Co., with assets of \$25,000, liabilities of \$5,000, and capital stock of \$20,000. The entire capital stock of the R Co., when the organization has been completed, is owned by the M Co., the cost being \$20,000; and the liabilities of R Co. at this point include advances made by the parent company of \$1,000. With these very simple conditions there are no complications in canceling the intercompany accounts and combining the other elements as shown by the table below:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Assets . . . . .	\$125,000 *	\$25,000	\$21,000	\$129,000
	<u>\$125,000</u>	<u>\$25,000</u>	<u>\$21,000</u>	<u>\$129,000</u>
Liabilities . . . . .	\$ 10,000	\$ 5,000	\$ 1,000	\$ 14,000
Capital Stock . . . . .	100,000	20,000	20,000	100,000
Surplus . . . . .	15,000			15,000
	<u>\$125,000</u>	<u>\$25,000</u>	<u>\$21,000</u>	<u>\$129,000</u>

\* Including investment in R Co. stock and amount of advance.

In this situation the consolidated assets are the aggregate assets, \$150,000, less the sum of M's investment in R stock and the advance to R, \$21,000. With respect to liabilities there is an elimination of \$1,000 in the case of R. The entire capital stock of R is intercompany and hence does not appear in the consolidated data.

During the following year M's sales amount to \$200,000, of which sales to R total \$50,000; expenses and other deductions, including taxes, amount to \$185,000. R's sales, all to outsiders, total \$75,000; expenses and other deductions amount to \$72,500; all of the goods acquired from M have been sold. A dividend of \$2,500 is declared and paid on R stock. Under these circumstances the income-sheet data are consolidated as indicated by the following tabulation:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Sales . . . . .	\$200,000	\$75,000	\$50,000	\$225,000
Charges . . . . .	185,000	72,500	50,000	207,500
	<u>\$ 15,000</u>	<u>\$ 2,500</u>	<u>\$ - - -</u>	<u>\$ 17,500</u>
Net Profit *				
Dividends Earned . . . . .	2,500		2,500	
Dividends Charged. . . . .		2,500	2,500	
	<u>\$ 17,500</u>	<u>\$ - - -</u>	<u>\$ - - -</u>	<u>\$ 17,500</u>

\* Exclusive of dividends.

The figure for consolidated sales, evidently, represents the total sales to outsiders by both concerns. The amount eliminated from charges—R's purchases from M—corresponds to the elimination from sales. The dividend appropriation and payment is clearly an intercompany transfer and hence the entire effect is eliminated from the consolidated data.

Assuming data at the end of the year consistent with the foregoing, and that the amount due M from R is now \$6,000, the figures for the consolidated balance sheet are determined as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Assets . . . . .	\$142,500	\$30,000	\$26,000	\$146,500
	<u>\$142,500</u>	<u>\$30,000</u>	<u>\$26,000</u>	<u>\$146,500</u>
Liabilities . . . . .	\$ 10,000	\$10,000	\$ 6,000	\$ 14,000
Capital Stock . . . . .	100,000	20,000	20,000	100,000
Surplus . . . . .	32,500			32,500
	<u>\$142,500</u>	<u>\$30,000</u>	<u>\$26,000</u>	<u>\$146,500</u>

**Cost of Stock and Subsidiary Book Value.** In the preparation of consolidated statements in practice a number of difficult problems of principle and technique arise which were avoided in the conditions assumed for the foregoing illustration. In the first place the controlling company may acquire its stock by purchase on the market or through negotiation rather than as an original subscriber, and at a price either above or below the value of the equity as it appears at date of acquisition on the books of the subsidiary. This is particularly likely to be the case where the stock is acquired some time after the date of original issue, as market value and book value seldom coincide for long.

The difference between the amount invested in subsidiary stock by the holding company and the book value of such stock may be accounted for in a number of ways. First, there is the possibility that the books of the subsidiary have been improperly kept in one or more particulars. For example, maintenance items which should have been charged to operation may have been capitalized or proper plant additions may have been absorbed in expenses. Second, the values of particular assets owned by the subsidiary may have changed although no record of such change has been made in the accounts. Land, for example, may have appreciated or have suffered a decline in market value. Third, the earning power of the subsidiary may be on a level which demonstrates the existence of intangible values which have not been recognized on the subsidiary books, or the earning power may be so unsatisfactory that the market price of the subsidiary stock will not validate the amount of tangible assets in-



volved, in the particular setting, although there may be no objection to the recorded values of tangibles when considered individually. In the fourth place is the possibility that the transaction should be interpreted as a "lucky buy," resulting from a weak bargaining position on the part of former holders of subsidiary stock or some other very special condition, or as an "unlucky buy," arising from inadequate investigation, over-anxiety on the part of the buying corporation to close the deal, or other unusual circumstance. There is also the possibility that affiliation is effected for the purpose of discouraging competition or strategically improving the position of the controlling corporation and that a premium paid for the stock acquired may be explained from this standpoint. Needless to say, the difference in a particular case may result from a combination of factors.

As will be emphasized shortly, the manner of dealing with excess of cost over book value or the excess of book value over cost for the purpose of consolidated reports may depend upon the conditions giving rise to the variation.

The nominal cost of the stock may not reflect fair market value on a cash basis. This is especially likely to be the case where the consideration is in the form of securities of the buying company with no established market value. In all such situations an effort should be made to find a sound basis for estimating the implied cash cost of the stock acquired.

**Adjustment of Subsidiary Book Value.** How should the difference between cost of stock to dominant company and subsidiary book value be treated in the preparation of consolidated statements? One approach is through revision of subsidiary accounts; the difference may be obliterated by adjustment of subsidiary book value. Assume, for example, that the M Co. buys for cash all of the capital stock of the R Co. at a cost of \$25,000, although the book value of such stock is only \$20,000. If the transaction is on a thoroughgoing commercial basis this means that the recorded net worth of the R Co. is understated from the standpoint of market value. With this condition it may be argued that although continuous revision of accounts to conform to estimated market values is uncalled for and undesirable, an adjustment as a result of a transaction which is closely allied to the outright sale of the enterprise is entirely proper. From the point of view of the new "owner," the M Co., the value of the R Co. as a going concern justifies a price for the stock of \$25,000, and this figure is validated by actual purchase. It follows, it may be urged, that the records of the R Co. (now essentially a division of the M Co.) should be harmonized with the valuation—cost to the M Co.—at which the transfer is effected. If this approach is accepted the assets of R will be written up in the amount of \$5,000, with a correspond-

ing increase in the total book value of the stock, an adjustment which will place the related intercompany accounts on the same basis.

The manner in which the write-up is effected should conform to the circumstances disclosed by the valuation on which the transaction was based. If this valuation shows that the recorded balances for tangible assets are in accord with present values to the going concern, the accounts with such assets should not be disturbed and the increase should be recorded as an intangible value. If it is found, on the other hand, that the book figures for particular assets are understated with respect to the appraised values the adjustment should take the form—at least in part—of a revision of the appropriate accounts with tangibles. One would expect that a combination adjustment, with changes in both directions, would often be necessary. The credit resulting from the revaluation should of course be lodged in a special account rather than in earned surplus except to the extent that actual cost values, which have been improperly written off, are disclosed. To illustrate, assume that the excess of the cost of R stock over book value is the net result of an estimated goodwill of \$2,000, an estimated increase in land value of \$2,500, an increase in the allowance for uncollectibles of \$1,000, and a restoration of equipment cost amounting to \$2,000, gross, and \$1,500 net. With these conditions the necessary entries, in summary, are:

Goodwill . . . . .	\$2,000	
Land—Appreciation . . . . .	2,500	
Equipment—Cost . . . . .	2,000	
Goodwill Surplus . . . . .		\$2,000
Surplus from Land Appreciation . . . . .		2,500
Equipment—Allowance for Depreciation . . . . .		500
Accounts Receivable—Allowance for Uncollectibles . . . . .		1,000
Earned Surplus . . . . .		500

Similarly if M acquired R stock with a book value of \$20,000 for a cost of \$15,000, the equity accounts of R might be reconciled with the investment account of M by writing down the assets of R by \$5,000 in accordance with data furnished by appraisal. As in the case of a write-up a number of accounts might be affected, with changes in both directions. A difficulty arises where the tangible assets of the subsidiary are reasonably stated on the subsidiary books when considered individually, but have a total book value in excess of their going-concern value in the particular setting in which they are employed. In this type of situation the difference between cost of subsidiary stock and the related book value is a blanket deduction applicable to subsidiary assets in general (exclusive of any current assets with an unquestioned realizable value equal to book figures), and specific adjustment of subsidiary books is hardly feasible.

Correction of subsidiary accounts to eliminate the effect of errors and

questionable practices brought to light in the process of affiliation is always justified.

Where 100% of the subsidiary stock is acquired by the controlling company a somewhat better case can be made for adjustment of subsidiary books as outlined than in affiliations in which there is a substantial minority interest.

**Reconciliation through Consolidated Statements.** The adjustment of subsidiary book values as indicated above is not seriously objectionable, and in particular instances may be the most satisfactory procedure. At the same time there is some reason for holding that this is not generally the most appropriate way of dealing with the problem. Concentration of a controlling interest or even of all of the stock of a company in the hands of a single holder, individual or corporate, is not, after all, strictly equivalent to the sale of the enterprise. Without actual merger the subsidiary corporation persists as a legal entity, and there should be no blinking of this fact. As a rule the transfer of shares where the corporation itself is not a party to the transaction is conceded not to affect the company books, and it may be urged that this position should be maintained regardless of the extent to which there is a shift of stock ownership. Acceptance of this point of view in this connection amounts to a recommendation that the reconciliation of the investment account of the holding company and subsidiary book value be taken care of in the preparation of the consolidated balance sheet—the device especially designed to picture the situation through the eyes of the dominant corporation.

The following simple work sheet—using an example similar to that given in the preceding section—indicates the way in which the reconciliation may be effected in the process of compiling the consolidated data. Note that the inclusion of the “excess of cost of stock” in the credit eliminations column is purely for the purpose of balancing; it would be equally satisfactory to include this item as a contra in the debit eliminations.

	<i>M Co.</i>	<i>R Co.</i>	<i>Eliminations</i>	<i>Consolidated</i>
Investment in R Stock. . . . .	\$ 25,000	\$	\$25,000	\$
Advance to R . . . . .	1,000		1,000	
Other Assets . . . . .	99,000	25,000		124,000
Excess of Cost of Stock . . . . .				5,000
	<u>\$125,000</u>	<u>\$25,000</u>	<u>\$26,000</u>	<u>\$129,000</u>
Advance from M . . . . .	\$	\$ 1,000	\$ 1,000	\$
Other Liabilities . . . . .	10,000	4,000		14,000
Capital Stock . . . . .	100,000	20,000	20,000	100,000
Surplus . . . . .	15,000			15,000
Excess of Cost of Stock . . . . .			5,000	
	<u>\$125,000</u>	<u>\$25,000</u>	<u>\$26,000</u>	<u>\$129,000</u>

**Presentation of Reconciling Figure.** The reconciling figure, shown in the table given above as "excess of cost of stock," should be reported in the consolidated balance sheet in terms of the underlying valuations in so far as this is feasible. Thus if this figure is the net result of the recognition of goodwill of \$2,000, land appreciation of \$2,500, etc., the amount might well be distributed accordingly in the statement proper, with an accompanying explanatory footnote or schedule. In most discussions of the technique of consolidated reporting, and to some extent in practice, the error is made of assuming that the amount by which the investment account of the holding company exceeds the book value of the stock, in the subsidiary's accounts, invariably represents goodwill—a premium paid for superior earning power. In one actual case where the subsidiary company owned a large tract of cypress the reconciling balance was reported as goodwill although the circumstances indicated clearly that in the increase in the quantity and value of the cypress over a period of years was the explanation of such balance. This is sloppy presentation, to say the least. Even more questionable is the practice of showing the amount by which the value of the stock on the subsidiary's books exceeds the cost to the parent company as "negative goodwill," as such a term has no satisfactory meaning. In the preparation of consolidated statements—as in other phases of accounting—the use of ambiguous and misleading titles should be avoided, and every effort should be made to display the position of the affiliated companies as a whole, viewed from the standpoint of the management and investors of the dominant organization.

Not always, unfortunately, are the data available which will permit a precise description of the difference between the related values of the intercompany stock. The price of the stock may have been determined by reference to market quotations and without a full investigation and appraisal (a deplorable condition). And even if a complete valuation has been made it may not be feasible to apply particular items of the appraisal to an explanation of the aforesaid difference, especially in view of the fact that the actual price finally agreed upon is not likely to coincide exactly with estimated values. In such circumstances the most appropriate procedure is to describe the reconciling element in the consolidated balance sheet literally as the amount by which the cost of the stock exceeds the subsidiary book value of the corresponding equity or vice versa. It should be added that it is often possible to offer a reasonably adequate explanation of the difference although distribution of the amount in terms of specific balance-sheet captions may not be expedient.

As noted earlier, the nominal cost of the stock of the subsidiary may not represent fair market value on a cash basis, especially where there

is an exchange of securities. Assuming that a satisfactory basis for estimating implied cash cost is lacking the problem should be met by a definite acknowledgment of the uncertainty—not by the introduction of a questionable “goodwill” figure. There are also cases where the desire to extend control, coupled with the optimistic assumption that in corporate consolidation the whole is bound to be greater than the sum of the constituents taken individually, result in a price for the stock in excess of a sound market value. In this event the reconciling element may be viewed in whole or in part as a loss, and where the circumstances are clear it is sound reporting to indicate this fact in the statements of the holding company as well as in the consolidated statements of parent and subsidiary.

In the very rare case in which the assumption of the “lucky buy” may be accepted the reconciling figure represents a form of capital surplus in the consolidated statement.

**Subsidiary Surplus and Deficit at Acquisition.** The surplus of the subsidiary company at the date of acquisition is an element of the total book value of the stock, and in eliminating the intercompany holdings in the process of consolidation, accordingly, an appropriate percentage of the surplus account must be suppressed. Assume, for example, that at the beginning of a particular period the M Co., with capital stock and surplus of \$100,000 and \$15,000, respectively, acquires all the stock of the R Co., with capital stock and surplus of \$20,000 and \$5,000, respectively, at a cost of \$25,000. The following indicates the treatment of subsidiary surplus required in preparing a consolidated balance sheet at this point:

	<i>M Co.</i>	<i>R Co.</i>	<i>Eliminations</i>	<i>Consolidated</i>
Investment in R Stock . . . . .	\$ 25,000	\$	\$25,000	\$
Other Assets . . . . .	90,000	25,000		115,000
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$25,000</u>	<u>\$115,000</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$20,000	\$100,000
Surplus . . . . .	15,000	5,000	5,000	15,000
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$25,000</u>	<u>\$115,000</u>

An accumulated deficit at the date of acquisition is similarly handled. Assume, for example, conditions as above except that the stock of R Co. has a stated value of \$30,000 and that there is a deficit on the R Co. books of \$5,000. The intercompany stockholding is eliminated as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock . . . . .	\$ 25,000	\$	\$25,000	\$
Other Assets . . . . .	90,000	25,000		115,000
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$25,000</u>	<u>\$115,000</u>
Capital Stock . . . . .	\$100,000	\$30,000	\$30,000	\$100,000
Surplus . . . . .	15,000	5,000 *	5,000 *	15,000
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$25,000</u>	<u>\$115,000</u>

\* Deficit.

Complications may arise where the subsidiary has an issue of preferred stock which is not acquired by the controlling organization. If the preference issue is participating it is necessary to determine the portion of surplus applicable to the common stock in finding the subsidiary book value to be eliminated against the investment account of the holding company. The effect on surplus of any preferred dividends in arrears must also be considered. The assignment of premium or capital surplus contributed by preferred stockholders may be troublesome. As pointed out in Chapter XXVI, the measurement of the book value of a particular class of stock in a complex capital structure is often a difficult matter.

Surplus reserves must be included in finding the total book value of subsidiary stock. This raises the problem of drawing a distinction between contra-asset and liability reserves on the one hand and true appropriated surplus on the other. (See discussion of reserves in Chapter XXVI.) Adjustments of the subsidiary stock equity resulting from appraisals likewise enter into the computation.

**Consolidation of Subsequent Profit or Loss.** If the investment in subsidiary stock is continued on the books of the holding company on a strict cost basis the recorded value is not affected by subsidiary profits earned after the date of acquisition. Such treatment conforms to that ordinarily recommended for individual investors, and is in harmony with the prevailing income-tax regulations. In the consolidated statement the holding company's share in subsequent profits is then reported as a section of the combined surplus of the affiliated companies. Assume, for example, that the M Co. acquires all of the R Co.'s stock when the surplus account of the subsidiary stands at \$5,000, and that during the following year the net profits of the R Co. after all deductions total \$2,500. The M Co. carries its investment account at cost. In this situation the subsidiary surplus at date of acquisition is eliminated in consolidation, but the increase in such surplus thereafter is not. The proper treatment is shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 25,000	\$	\$25,000	\$
Other Assets . . . . .	105,000	27,500		132,500
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,000</u>	<u>\$132,500</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$20,000	\$100,000
Surplus:				
Parent . . . . .	30,000			30,000
Subsidiary (at acquisition) . . .		5,000	5,000	
Subsidiary (subsequent) . . .		2,500		2,500
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,000</u>	<u>\$132,500</u>

A loss occurring after affiliation was effected would be similarly handled. If, for example, the conditions were as above except that the R Co. suffered a loss of \$2,500, the amount of such loss would appear in the consolidated balance sheet as an offset to the surplus of the parent company.

**Absorption of Subsequent Profit or Loss.** Under the so-called "actual-value" method the investment account of the holding company is regularly charged with the appropriate fraction of the profits earned by the subsidiary after the date of acquisition and is credited with the amount of all subsidiary losses applicable to the stock held, the accompanying entries being reflected in income and surplus. Where this procedure is in effect the profit or loss of the subsidiary accruing subsequent to affiliation, as well as the surplus or deficit on the books when the stock is acquired, is eliminated in the amount applicable, in the process of consolidation, to avoid double counting. The following tabulation is illustrative:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 27,500 *	\$	\$27,500	\$
Other Assets . . . . .	105,000	27,500		132,500
	<u>\$132,500</u>	<u>\$27,500</u>	<u>\$27,500</u>	<u>\$132,500</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$20,000	\$100,000
Surplus:				
Parent . . . . .	32,500 *			32,500
Subsidiary (at acquisition) . . .		5,000	5,000	
Subsidiary (subsequent) . . .		2,500	2,500	
	<u>\$132,500</u>	<u>\$27,500</u>	<u>\$27,500</u>	<u>\$132,500</u>

\* Including subsidiary profit absorbed of \$2,500.

This treatment, although strongly advocated in some quarters, is definitely objectionable. As pointed out earlier the legal existence of

the subsidiary cannot be ignored because a controlling interest in its stock, or even all of such stock, has been acquired by a single holder. The assets of the subsidiary continue to be owned by the corporation, not by the stockholders, and it follows that the subsidiary's profits are not effectively realized by the holding company until appropriated as dividends in the regular manner. It is beyond the proper scope of the accounts and statements of the dominant company, in other words, to show the earnings and losses of the affiliated enterprises as a whole; this is peculiarly the function of the consolidated report. Further, if the investment account is charged with the cost of the stock at the outset, and then is increased or decreased with the increase or decrease in subsidiary book value occurring after acquisition, the result is not "actual value" but a hodgepodge of cost to the parent company and changes in value as reported by the subsidiary. It would be more reasonable to adjust the investment account at date of acquisition to subsidiary book value, followed by periodic absorption of the holding company's share of subsidiary profits and losses, for the subsidiary's record of the amount of its stock equity is presumably just as valid and significant prior to acquisition as later. The principal logical alternative to maintaining the investment account on a strict cost basis is the consistent use of fair market value. (See discussion of valuation of investments in Chapter VII.)

Under a possible compromise procedure the parent company's share in subsidiary profit or loss is absorbed in supplementary accounts, and the effect is excluded from the income statement. Assume, for example, that the M Co. has purchased all of the R Co.'s stock and that in the first period after acquisition the subsidiary earns \$2,500. The M Co. "takes up" this profit by memorandum entries as follows:

Investment in R Stock—Increment . . . . .	\$2,500	
Accrued Subsidiary Profit . . . . .		\$2,500

For the purpose of the M Co.'s own statements the entries are viewed as self-balancing and without effect. If, later, a dividend of \$2,000 is declared and paid by the R Co. the effect on M Co. books is recorded as follows (ignoring question of accruing dividends receivable):

(1)		
Cash . . . . .	\$2,000	
Dividend Income . . . . .		\$2,000
To recognize dividend income		
(2)		
Accrued Subsidiary Profit . . . . .	2,000	
Investment in R Stock—Increment . . . . .		2,000
To close memorandum accounts to extent of dividend		



**Adjustment of Reconciling Figure.** The original difference between cost of subsidiary stock and book value at date of acquisition is subject to adjustment as later conditions warrant. In the first place an adjustment is justified wherever the original difference clearly represents an unrecognized increase or decrease in the value of subsidiary assets subject to depreciation, depletion or amortization. For example, the M Co., with capital stock and surplus of \$100,000 and \$15,000, respectively, acquires all the stock of the R Co., with capital stock and surplus of \$25,000 and \$5,000, respectively, at a cost of \$35,000. The excess of the cost of stock over book value at acquisition reflects the increase in the value of timber owned by R Co. which has not been recorded on that company's books. During the first year after acquisition 20% of R's timber is cut and marketed; depletion is computed on cost to R, which does not include accretion. M's profits for the year total \$10,000 and R's profits amount to \$3,000, and no dividends have been appropriated. In preparing consolidated statements under these conditions the reconciling figure of \$5,000 representing unrecorded accretion should be written down by the amount of 20% or \$1,000, with a corresponding adjustment of consolidated surplus as otherwise determined. That is, from the standpoint of consolidation the profits of R, with depletion based on cost, are \$1,000 in excess of the profits which would be reported with depletion based on market value of the timber at date of affiliation. The following tabulation shows the effect of the adjustment:

	<i>M Co.</i>	<i>R Co.</i>	<i>Eliminations</i>	<i>Consolidated</i>
Investment in R Stock . . . .	\$ 35,000	\$	\$35,000	\$
Other Assets . . . . .	90,000	33,000		123,000
Timber Accretion—at Acquisition . . . . .				5,000
Absorption of Accretion . . . .				1,000 *
	<u>\$125,000</u>	<u>\$33,000</u>	<u>\$35,000</u>	<u>\$127,000</u>
Capital Stock . . . . .	\$100,000	\$25,000	\$25,000	\$100,000
Surplus—at Acquisition . . . .	15,000	5,000	5,000	15,000
Profits—since Acquisition . . .	10,000	3,000		13,000
Timber Accretion . . . . .			5,000	
Absorption of Accretion . . . .				1,000 *
	<u>\$125,000</u>	<u>\$33,000</u>	<u>\$35,000</u>	<u>\$127,000</u>

\* Deduction.

In the second place an adjustment is necessary wherever there is a revision of subsidiary book value after the date of acquisition which clearly pertains to conditions existing on that date. If, for example, a

write-down of subsidiary assets occurs which represents the elimination of appreciation recognized prior to acquisition, the booking of obsolescence accrued prior to acquisition, or some other revision applicable to book value in existence at date of acquisition rather than to surplus accumulated since, there should be an appropriate change in the original reconciling figure. Similarly in the case of a special write-up of subsidiary assets, which cannot properly be reflected in subsidiary surplus since acquisition, an adjustment is in order.

It should be noted that if the cost of the subsidiary stock corresponds precisely to subsidiary book value at date of acquisition, and such book value is later revised without absorption of the change in surplus since acquisition, it is necessary to provide for reconciliation from that point on in the preparation of consolidated statements.

**Dividends Receivable at Acquisition.** The treatment of dividends on intercompany stock holdings requires special attention. In the first place there is the question of how to deal with dividends received which were declared prior to date of acquisition.

It is generally fair to assume that the purchase price of the stock includes a dollar-for-dollar payment for the dividends already authorized to which the buyer is entitled, and it follows that when such dividends are received the amount should be credited to the cost of the investment. If the M Co., for example, pays \$25,000 for stock of the R Co. on which dividends have been declared of \$1,000, and the purchase is made before the date the stock becomes "ex dividend," the total price presumably includes \$1,000 to cover dividends receivable, and the transaction should be handled accordingly. In view of its current character the dividend element may well be segregated in a special account. The following entries illustrate the procedure:

(1)			
Investment in R Stock	.	.	\$24,000
Dividends Receivable—R Stock	.	.	1,000
Bank Account	.	.	\$25,000
To record acquisition of stock, dividend on			

(2)			
Cash	.	.	1,000
Dividends Receivable—R Stock	.	.	1,000
To record collection of dividend			

This interpretation might be objected to if a considerable time elapsed between the purchase of the stock and the collection of the dividend, as in this event the fair market value—and hence the cost—of the dividend receivable when the stock is acquired may be expected to be appreciably less than the face amount. Seldom, however, are dividends declared more than a few weeks in advance of payment.

**Dividends from Surplus at Acquisition.** The treatment of dividends declared after the subsidiary stock is acquired but based on surplus originating prior to the date of purchase is somewhat debatable. If the investment account on the holding company's books is maintained on a strict cost basis, in accordance with the prevailing rules governing determination of taxable income, all dividends other than those representing capital distributions from the standpoint of the declarer become income to the stockholder as appropriated or received, without regard to the date of purchase and the relation of this date to the period of accumulation. The objection to this interpretation is found in the failure to distinguish between the position of an original stockholder and a holder who acquires his stock after a period of operation. To the stockholder who makes an investment in the corporation at time of organization all profits earned by the enterprise belong to the income category (although ordinarily realizable only in the form of dividends), and no distributions based on such profits can reasonably be construed as a return of investment or capital. The stockholder who buys after profits have been accumulated, on the other hand, pays for the stock equity as it stands at date of purchase, and it seems thoroughly sound to assume that surplus and capital as these elements appear on the corporate books are proportionately represented in the price paid. If the M Co., for example, pays \$25,000 for the stock of the R Co., which appears on R's books in the form of capital, \$20,000, and surplus, \$5,000, it is plain that one-fifth of the cost is the price of the values represented by accumulated profits. And if the cost of the stock were more or less than the book value, other conditions remaining the same, the amount which might be said to cover existing surplus would still be one-fifth of the total cost. It follows that the most rational treatment on the holding company's books for dividends received unquestionably based on surplus originating prior to date of acquisition would be to apply such dividends to the absorption of the investment account in accordance with the valuations implicit in the price paid for the stock. If the cost of R stock, to illustrate, is \$25,000, the same as book value, and a dividend is immediately declared and paid of \$2,500, the entire amount should be credited to the investment account. If the stock cost \$20,000, with a book value of \$25,000 of which \$5,000 is surplus, the cost of a dividend of \$2,500 based on existing surplus, and declared after acquisition, would be one-half ( $2,500/5,000$ ) of one-fifth ( $5,000/25,000$ ) of the total cost, or \$2,000, and the receipt of the dividend would accordingly represent a liquidation of investment of \$2,000, and a realization of a special profit of \$500 (a profit, however, which might be considered to be offset by implicit overvaluation of the

subsidiary's assets from the standpoint of worth as a going concern). Similarly with conditions the same except that the cost of the stock is \$30,000, the reduction in investment account when the dividend of \$2,500 is received would be \$3,000 (half of one-fifth of total cost), and a special loss of \$500 would be involved (a loss, however, which might be considered to be offset by values attaching to the subsidiary and recognized in the price of the stock, but not appearing in the subsidiary's accounts).

In practice it is usually recommended that the adjustment of the investment be based on the actual amount of the dividend, regardless of the relation between the price paid for the stock and its book value. This treatment is more simple than that outlined above, calling for an assignment of a proportionate part of the cost of the stock to the element of surplus at acquisition. It may also be defended on logical grounds where the dividend is declared and paid shortly after the stock is acquired, as in this event the portion of surplus absorbed by the dividend can be assumed to attach to the cash utilized in making payment—an asset not subject to revaluation in either direction.

The objection to the inclusion in income account of dividends based on purchased surplus has no force as a practical matter in the case of a small disbursement which is presumably matched by income already earned, although not booked, or income which may be expected to be earned within a short time. On the other hand the conventional treatment under which all dividends received—without regard to source of appropriation—are treated as income on the stockholder's books may lead to ridiculous conclusions in special cases. Suppose, for example, that a corporation buys a controlling interest in the stock of a corporation which has a surplus account equal to 50% of the total book value of the equity, and that shortly thereafter a dividend is appropriated amounting to 80% of the total surplus. Such a dividend, from the standpoint of the buyer, represents a liquidation of 40% of the entire investment, and the result of treating it as an item of income would be a gross inflation of the current earnings of the holding company and a continuing misstatement of the investment account.

The foregoing discussion of dividends appropriated from purchased surplus is applicable to the individual stockholder, large or small, as well as to the corporation holding a majority interest. For the ordinary stockholder, however, the income-tax regulations tend to exert a decisive influence.

Capital distributions—amounts received from the subsidiary in partial or complete liquidation of capital—should be dealt with as adjustments

of the investment account, with accompanying profit or loss calculated in the same manner as the ideal treatment of dividends from surplus at acquisition illustrated above.

**Dividends from Subsequent Surplus.** As a guide in determining when dividends are drawn from surplus earned subsequent to acquisition as opposed to purchased surplus the most satisfactory rule assumes that dividend appropriations apply to earnings in order, beginning with the most recent accumulation.

If the holding company's investment account is kept on a strict cost basis subsidiary dividends appropriated from profits earned after the date of acquisition are recorded as income on the holding company's books, as already indicated. If, however, the investment account is regularly charged with the holding company's equity in subsidiary income earned, dividends as received must be credited to such account. Assume, for example, that M buys R stock for \$25,000, that R earns \$2,500 in the first period thereafter, and that at the beginning of the second period a dividend of \$2,000 is declared and paid. The entries under the "actual-value" method are as follows:

(1)			
Investment in R Stock . . . . .		\$2,500	
Income earned on R Stock . . . . .			\$2,500
(2)			
Cash . . . . .		2,000	
Investment in R Stock . . . . .			2,000

See the objections to this approach, and the discussion of the treatment of dividends under compromise method, outlined earlier.

**Subsidiary Stock Dividends.** The stock dividend, as explained in Chapter VII, ordinarily requires no entries on the stockholder's books. From the standpoint of the issuer the transaction simmers down to a transfer of surplus to capital account. In the preparation of the consolidated balance sheet care must be taken to avoid elimination of that portion of the subsidiary capital stock account which is based on surplus accumulated after date of acquisition of stock by holding company; that is, it is only the capital and surplus as of the date the stock is purchased which attaches—in whole or in part—to the holder's investment account. Assume, for example, that the M Co. buys stock of the R Co. when the capital stock stands at \$20,000 and the surplus at \$5,000, and that a year later—after a profit of \$2,500 has been earned by the subsidiary—a stock dividend of \$5,000 is declared and "paid" to the parent company. The following tabulation shows the elimination of the intercompany stockholding under these conditions:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 25,000	\$	\$25,000	\$
Other Assets . . . . .	105,000	27,500		132,500
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,000</u>	<u>\$132,500</u>
Capital Stock . . . . .	\$100,000	\$25,000	\$22,500	\$102,500 *
Surplus:				
Parent . . . . .	30,000			30,000
Subsidiary (at acquisition) . . .		2,500	2,500	
Subsidiary (subsequent). . . .				
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,000</u>	<u>\$132,500</u>

\* Including amount of stock dividend based on surplus since acquisition, \$2,500.

Here the surplus earned since acquisition appears as an element in the consolidated capital stock account. The amount of surplus at the date of purchase which has been capitalized, together with the balance of such surplus, is eliminated. An alternative treatment would be to restore the surplus earned since acquisition to the surplus account in the consolidated report. This might be justified on the ground that the stock dividend is a nominal intercompany transaction which has no bearing on the consolidated picture. It would be objectionable, on the other hand, in that the distribution of the consolidated stock equity between capital stock and surplus would not conform to the formal conditions of capitalization prevailing after the issue of the dividend stock.

The assumption that a stock dividend absorbs surplus on a "last-earned, first-appropriated" basis might be questioned, although this assumption is usually accepted in dealing with cash dividends. It would be perhaps more reasonable to apply stock dividends—a form of surplus capitalization—to accumulated earnings in the order of origin, on the ground that it is the older surplus which has been invested in the business and which is no longer available for actual distribution. If this approach were adopted in the example given the entire amount of the stock dividend would be charged to surplus at acquisition, and no special problem of presentation would be raised unless and until additional stock dividends were declared.

**Acquisition of Stock in Blocks.** Assume that at the beginning of a particular period the stock of the R Co. stands at \$20,000 and the surplus at \$5,000. At this point the M Co. acquires 75% of the stock at a cost of \$18,750, which is the same as book value. A year later, after the R Co. has earned and booked a profit of \$2,500, the M Co. buys the balance of the stock at a cost of \$6,875, this being 25% of the book value at the end of the year. In this situation the amounts of purchased capital and surplus at the outset are \$15,000 and \$3,750, respectively, which

leaves a minority interest of \$5,000 and \$1,250. The data for a consolidated balance sheet at the date of acquisition of the controlling interest would therefore be compiled as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 18,750	\$	\$18,750	\$
Other Assets . . . . .	96,250	25,000		121,250
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$18,750</u>	<u>\$121,250</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$15,000	\$105,000 *
Surplus . . . . .	15,000	5,000	3,750	16,250 †
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$18,750</u>	<u>\$121,250</u>

\* Including minority interest of \$5,000.

† Including minority interest of \$1,250.

In acquiring the balance of R Co. stock at the end of the year the M Co. is in effect buying the balance of the stock account, \$5,000, the balance of the original surplus of \$1,250, and 25%, or \$625, of the profits of \$2,500 earned during the year, a total of \$6,875. This leaves only 75% of the profits earned since acquisition of the first block to be reported as an element of consolidated surplus. In other words a portion of the profits for the year is purchased in the acquisition of the second block and is therefore subject to elimination along with the investment account of the holding company. The following tabulation shows the basis for the consolidated balance sheet at the end of the year:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 25,625	\$	\$25,625	\$
Other Assets . . . . .	104,375	27,500		131,875
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,625</u>	<u>\$131,875</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$20,000	\$100,000
Surplus:				
Parent . . . . .	30,000			30,000
Subsidiary (at beginning of year)		5,000	5,000	
Subsidiary (earned during year)		2,500	625	1,875
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$25,625</u>	<u>\$131,875</u>

To introduce again the problem of reconciling the cost of the stock and subsidiary book value assume all conditions as above except that the first block is purchased for \$20,000, an amount exceeding book value by \$1,250, and the second for \$6,000, a figure \$875 less than book value.

Under these circumstances the condensed consolidated work sheet at the end of the year is as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 26,000	\$	\$26,000	\$
Other Assets . . . . .	104,000	27,500		131,500
Excess of Cost of Stock . . . . .				375
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$26,000</u>	<u>\$131,875</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$20,000	\$100,000
Surplus:				
Parent . . . . .	30,000			30,000
Subsidiary (at beginning of year) . . . . .		5,000	5,000	
Subsidiary (earned during year)		2,500	625	1,875
Excess of Cost of Stock . . . . .			375	
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$26,000</u>	<u>\$131,875</u>

Cancellation of the excess of the cost of one block of stock over the corresponding book value against the excess of the book value of another block over cost may be objected to where circumstances are such as to make possible a precise interpretation of each difference.

The stock of the subsidiary is sometimes acquired in a series of small blocks over a considerable period. Where the stock of the buying company is offered to the stockholders of the subsidiary in exchange for their shares, for example, a day-to-day increase in the amount of subsidiary stock owned may be expected as long as the offer holds. Similarly where stock is purchased by negotiation with individual holders, or through protracted market operations, the number of shares held is subject to continuous change throughout the period of acquisition. In effecting consolidation under such circumstances the computation of the subsidiary book value associated with the holding company's investment account may become rather troublesome. Ideally the cost of the purchases of each day should be compared with subsidiary book value as of such day, but this would require the spreading of the periodic profits of the subsidiary and many calculations. One possibility is to assume that the purchases of a particular month, for example, occur as of the middle of the month, and that the subsidiary value as of such date is the average of beginning and ending book figures. Or the purchases of the month may be treated as having occurred at either the first or last day of the period. Where the terms of the exchange or purchase have been settled in the light of subsidiary status as of a particular date, it may not be unreasonable to compare the cost of all stock acquired under the agreement with the book value of such date. Usually it is not difficult to work



out some method of approximation which will satisfy the purposes of the consolidated statement. Differences in methods of computing the subsidiary book value to be eliminated, it should be recognized, are reflected in the consolidated data in the amount of the reconciling element.

**Intercompany Payables and Receivables.** The holding company usually confines its purchases of subsidiary securities to voting stocks, but occasionally subsidiary bonds or long-term notes are acquired. Where subsidiary fixed obligations are secured as a result of a direct loan by the parent company the amount recorded on the borrower's books presumably is the same as that appearing in the accounts of the lender, and the matched items are readily eliminated in the process of consolidation. Where, on the other hand, subsidiary bonds or notes are purchased on the market after the date of issue, the price paid is not likely to correspond precisely with the amount of the liability shown on the records of the subsidiary. In this event reconciliation is necessary in the preparation of the consolidated balance sheet.

Assume, for example, that a subsidiary company has outstanding an issue of mortgage bonds with a face or maturity value of \$50,000 and an unaccumulated discount of \$5,000. At this point the parent company buys 20% of the issue at a total cost of \$8,500. With these conditions how should the difference between the bond investment account of the buyer and the net book value of the liability on the subsidiary's books, which amounts to \$500, be dealt with in eliminating the intercompany holding? From the standpoint of the affiliated enterprises as a whole the transaction amounts to the retirement (or acquisition for the "treasury") of a block of bonds at less than recorded value, with a resulting special "profit" of \$500. In the consolidated balance sheet, accordingly, it is not unreasonable to treat the reconciling figure as an element of surplus, segregated under a special caption where the amount is at all large. Similarly if the bonds were purchased at a cost of \$9,500 the elimination of the intercompany bond accounts in consolidation would bring to light a special "loss" or offset to surplus of \$500. Another possible line of interpretation in both of these situations considers the difference between the cost of the security and the recorded amount of the liability on the subsidiary books as an adjustment, from a going-concern standpoint, of subsidiary assets. In general it is not advisable to amalgamate the adjustment of the consolidated profit or loss associated with intercompany liability accounts with the difference between the cost of intercompany stock to the holding company and the related book value on the subsidiary's books.

Where the subsidiary bonds are acquired at a premium or discount which is not matched on the issuer's books the initial reconciling figure

is subject to periodic modification as a result of amortization or accumulation. At maturity the related accounts should correspond exactly. In other words, the special adjustment required at the outset in consolidating should be systematically absorbed during the remaining life of the security. This emphasizes the advisability of segregating the reconciling element—in the working papers if not in the actual consolidated balance sheet.

Current accounts and notes receivable and payable resulting from intercompany sales and advances usually appear at face value on both sets of books, and hence are eliminated without giving rise to a special adjustment of the consolidated data. The same is usually true of interest receivable and payable and of other accruals where the accounting periods of the related companies are the same. If the periods are different special adjustments are needed in the consolidated working papers to bring the accruals of the subsidiary into line with the data on the parent company's books. It is necessary, of course, to harmonize the related accounts with respect to items "in transit." Thus if the R Co. owes the M Co. \$1,000 on open account and at the close of the period a check from the R Co. for \$500 is in the mail, adjusting entries are needed on the M Co. books as a preliminary step in compiling the data for consolidation. Or if this is not deemed to be feasible a reconciliation is necessary in the working papers.

Intercompany contingent liabilities and receivables have no bearing on the position of the affiliated enterprises viewed as a whole, and hence need not be shown or referred to in the consolidated balance sheet.

### QUESTIONS

1. State the principal forms of business enterprise affiliation other than actual mergers. Is an investment trust a holding company?
2. From whose point of view and for what purpose should consolidated statements be prepared?
3. What degree of ownership on the part of the parent company is necessary to justify the use of consolidated reports? Has operating relationship any bearing? Existence of a clearly dominant company?
4. "The separate statements of the constituent companies are not needed where consolidated reports are available." Do you agree? Explain.
5. Point out the limitations of consolidated ratios.
6. Outline the general method of preparing consolidated reports.
7. List the principal conditions which may explain the difference between the investment account of the holding company and the corresponding subsidiary book value.
8. Discuss the adjustment of the subsidiary books as a means of reconciling cost of stock and related book value. Reconciliation through consolidated statements.
9. Criticize the use of "consolidated goodwill" as a description of the reconciling element.

10. Outline the treatment in consolidation of surplus or deficit at date of acquisition.

11. How should subsidiary surplus or deficit accruing after acquisition be handled: (1) when the investment account of the dominant company is maintained at cost; (2) under the so-called "actual-value" method? Which treatment is preferable and why?

12. Outline a "compromise" method by which subsidiary profit or loss may be absorbed on the parent company's books.

13. With an example show how dividends on subsidiary stock declared prior to date of acquisition and paid after such date should be dealt with in connection with the consolidated reports.

14. With examples show how each of the following should be handled on the parent company's books and in the process of consolidating: (1) dividends declared subsequent to date of acquisition from surplus accumulated prior to such date; (2) liquidating "dividends"; (3) dividends declared from profits earned after acquisition; (4) stock dividends.

15. State definitely how you would determine the source of a subsidiary dividend with respect to surplus accruing before or after date of acquisition of stock by parent company.

16. With an illustration show how the intercompany investment and stock equity accounts are canceled and the reconciling element is computed when the subsidiary stock is acquired in a number of blocks.

17. Discuss the reconciliation of intercompany bond holdings. Why should the reconciling element in this case be segregated?

18. How are intercompany current receivables and payables handled in consolidating? Indicate the importance of adjustments for "transactions in process" in this connection.

## XXXV

### CONSOLIDATED STATEMENTS—Continued

**Minority Equity at Acquisition.** Where less than 100% of the subsidiary stock is held by the controlling company the minority interest must be recognized in the consolidated statement. For a simple example assume that the capital stock and surplus of the R Co. amount to \$20,000 and \$5,000, respectively, and that at this point the M Co. acquires a 90% holding—with a book value of \$22,500—at a cost of \$21,000. With these conditions the data of the consolidated balance sheet at the time of affiliation are compiled as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock . . . .	\$ 21,000	\$	\$21,000	\$
Other Assets . . . . .	94,000	25,000		119,000
Excess of Subsidiary Book Value .			1,500	
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$22,500</u>	<u>\$119,000</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$18,000	\$100,000
Surplus . . . . .	15,000	2,000 *	2,000	2,000 *
		4,500	4,500	15,000
		500 *		500 *
Excess of Subsidiary Book Value .				1,500
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$22,500</u>	<u>\$119,000</u>

\* Minority.

A subsidiary deficit at date of acquisition would be similarly divided between majority and minority interests.

A question arises as to the amount of the reconciling figure where there is a minority equity. Should not the valuation implicit in the purchase price of the stock be reflected in the consolidated balance sheet in full—for the minority as well as the majority interest? If, for example, 90% of the subsidiary stock has a market value of \$21,000.00, a value of \$23,333.33 is indicated for the entire equity, and the amount of the minority interest on this basis is \$2,333.33 instead of \$2,500.00 as shown in the above compilation. The case for a complete adjustment is especially strong where the reconciliation is conceived in terms of particular

asset values. Thus if the price paid for the stock in the illustration is based on an appraisal which shows an accrued depreciation exceeding the amount booked by \$1,666.67, it would seem somewhat ridiculous to present a consolidated report in which the increase in the allowance for depreciation is restricted to \$1,500.00. On the other hand it may be argued that where a minority equity is present it is expedient to view the consolidated statement as a compromise which shows the affiliated enterprises considered as a whole to the extent of the holding of the parent company and leaves the position of the minority undisturbed. The reasonable conclusion seems to be that either approach is satisfactory for most situations.

**Minority Share in Profit or Loss.** The minority share in profits accruing after affiliation is effected must also be included in the consolidated data. The following tabulation—based on the example in the preceding section with the added assumption of profits accrued in the period after acquisition—is illustrative:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consol- idated</i>
Investment in R Stock. . . . .	\$ 21,000	\$	\$21,000	\$
Other Assets . . . . .	109,000	27,500		136,500
Excess of Subsidiary Book Value .			1,500	
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$22,500</u>	<u>\$136,500</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$18,000	\$100,000
		2,000 *		2,000 *
Surplus—at Acquisition . . . .	15,000	4,500	4,500	15,000
		500 *		500 *
Surplus—Since Acquisition . . .	15,000	2,250		17,250
		250 *		250 *
Excess of Subsidiary Book Value				1,500
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$22,500</u>	<u>\$136,500</u>

\* Minority.

A subsidiary loss accruing after date of acquisition would be similarly apportioned between majority and minority equities.

**Indirect Ownership and Minority Equity—At Acquisition.** Even in an integrated group of companies each subsidiary may be directly controlled by stock ownership on the part of the parent company. On the other hand, affiliations in which there are two or more levels or tiers of subsidiary companies are not uncommon. With conditions of indirect ownership the interpretation of relationships becomes somewhat more difficult, and the technical work of consolidation is more complex. In particular questions arise with respect to the measurement of the minority equities.

The M Co., for example, owns 90% of the stock of the R Co. and the

latter in turn owns 90% of the shares of the S Co. All intercompany holdings have been acquired simultaneously, at costs coinciding with book values. In this situation the equity of the dominant company in S is only 81% (90% of 90%); that is, the minority stockholders of R have a 10% interest in R's holding of S, which gives them a 9% equity (10% of 90%) in the total net worth of S. But it does not follow that in the consolidated statement at date of acquisition there will be a minority equity amounting to 19% of the capital and surplus of S in addition to 10% of the capital and surplus of R. The net minority equity, in this situation, is restricted to the amount assignable to the shares in the hands of outsiders—10% each of R and S. The following illustrates the proper treatment:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . . . .	\$ 22,500	\$	\$	\$22,500	\$
Investment in S Stock . . . . .		10,800		10,800	
Other Assets . . . . .	92,500	14,200	12,000		118,700
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$33,300</u>	<u>\$118,700</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus . . . . .	15,000	4,500	1,800	6,300	15,000
		500 *	200 *		700 *
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$33,300</u>	<u>\$118,700</u>

\* Minority.

As shown by the table the combined minority interest is represented by \$3,700 in capital and surplus, which leaves \$115,000 as the majority share of consolidated net worth. The soundness of this assignment may be verified by considering how the net resources of the group would be finally apportioned in the event of a liquidation resulting in the realization of existing book values. With no liabilities the amount available under this assumption would be the total of the "other assets," \$118,700. The equitable distribution is shown by the following:

	<i>S Co.</i>		<i>R Co.</i>		<i>M Co.</i>		<i>Total</i>
	%	<i>Amount</i>	%	<i>Amount</i>	%	<i>Amount</i>	<i>Amount</i>
S Minority . . . . .	10	\$ 1,200		\$		\$	\$ 1,200
R Minority . . . . .	9	1,080	10	1,420			2,500
Minority Stockholders—							
Total . . . . .	19	\$ 2,280	10	\$ 1,420		\$	\$ 3,700
M Stockholders . . . . .	81	9,720	90	12,780	100	92,500	115,000
	<u>100</u>	<u>\$12,000</u>	<u>100</u>	<u>\$14,200</u>	<u>100</u>	<u>\$92,500</u>	<u>\$118,700</u>

The parent company's equity in the stock of a particular subsidiary is sometimes represented by a combination of direct and indirect ownership. M, for example, owns 90% of R and 40% of S, while R owns 50% of S. Assuming again that all holdings are acquired at the same time and at book value, the data for consolidating at date of acquisition are compiled as below:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 22,500	\$	\$	\$22,500	\$
Investment in S Stock . . .	4,800	6,000		10,800	
Other Assets . . . . .	87,700	19,000	12,000		118,700
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$33,300</u>	<u>\$118,700</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus . . . . .	15,000	4,500	1,800	6,300	15,000
		500 *	200 *		700 *
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$33,300</u>	<u>\$118,700</u>

\* Minority.

Evidently the only difference between this and the preceding compilation is found in the composition of the assets of M and R.

The net minority interest is similarly determined where the costs of the intercompany holdings do not correspond to related book values. If, for example, M pays \$24,000 for a 90% interest in R and the latter pays \$10,000 for a 90% interest in S, with the total stock equities of the subsidiaries standing at \$25,000 and \$12,000, respectively, consolidation at date of acquisition is effected as shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 24,000	\$	\$	\$24,000	\$
Investment in S Stock . . .		10,000		10,000	
Other Assets . . . . .	91,000	15,000	12,000		118,000
Excess of Book Value of S Stock . . . . .				800	
Excess of Cost of R Stock . .					1,500
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$34,800</u>	<u>\$119,500</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus . . . . .	15,000	4,500	1,800	6,300	15,000
		500 *	200 *		700 *
Excess of Book Value of S Stock . . . . .					800
Excess of Cost of R Stock . .				1,500	
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$34,800</u>	<u>\$119,500</u>

\* Minority.

In this compilation the reconciling elements are confined to the amounts attaching to the intercompany holdings; that is, the minority equities are not revalued. If the values indicated by the costs of subsidiary stocks are fully reflected in the consolidated statement the amount of the minority equity is \$3,777.78 instead of \$3,700.00. The method of computation may be readily explained. If 90% of the stock equity of S has a value of \$10,000.00 the value of the entire equity is \$11,111.11. This is \$888.89 less than the total book value of \$12,000.00. Similarly, if 90% of R stock is worth \$24,000.00 a total value for the stock equity of \$26,666.67 is indicated, an excess over book value of \$1,666.67. Ten per cent of the revised S equity is \$1,111.11 and 10% of the revised R equity is \$2,666.67, which gives a total minority interest of \$3,777.78. This figure may also be computed by taking 19% of the revised S equity, \$2,111.11, plus 10% of the revised R equity excluding the S stock owned, \$1,666.67. The data of this type of situation may be set up in the work sheet in a variety of ways. The following is the simplest procedure:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . .	\$ 24,000.00	\$	\$	\$24,000.00	\$
Investment in S Stock . .		10,000.00		10,000.00	
Other Assets . .	91,000.00	15,000.00	12,000.00		118,000.00
Excess of Book Value of S Stock . .				888.89	
Excess of Total Indicated Value of R Stock . .					1,666.67
Adjustment of Minority Equity . .				77.78	
	<u>\$115,000.00</u>	<u>\$25,000.00</u>	<u>\$12,000.00</u>	<u>\$34,966.67</u>	<u>\$119,666.67</u>
Capital Stock . .	\$100,000.00	\$18,000.00	\$ 9,000.00	\$27,000.00	\$100,000.00
		2,000.00 *	1,000.00 *		3,000.00 *
Surplus . . .	15,000.00	4,500.00	1,800.00	6,300.00	15,000.00
		500.00 *	200.00 *		700.00 *
Excess of Book Value of S Stock . .					888.89
Excess of Total Indicated Value of R Stock . .				1,666.67	
Adjustment of Minority Equity . .					77.78 *
	<u>\$115,000.00</u>	<u>\$25,000.00</u>	<u>\$12,000.00</u>	<u>\$34,966.67</u>	<u>\$119,666.67</u>

\* Minority



This assignment likewise may be verified by tracing the equitable distribution which would be made if the assets of all three companies were liquidated at consolidated values. The distribution is as follows:

	<i>S Co.</i>		<i>R Co.</i>		<i>M Co.</i>		<i>Total</i>
	%	<i>Amount</i>	%	<i>Amount</i>	%	<i>Amount</i>	<i>Amount</i>
S Minority Stockholders	10	\$ 1,111.11		\$		\$	\$ 1,111.11
R Minority Stockholders	9	1,000.00	10	1,666.67			2,666.67
Minority Stockholders—Total	19	\$ 2,111.11	10	\$ 1,666.67		\$	\$ 3,777.78
M Stockholders	81	9,000.00	90	15,000.00	100	91,000.00	115,000.00
	100	\$11,111.11	100	\$16,666.67	100	\$91,000.00	\$118,777.78

It is important to note that this distribution is based on the values implicit in the costs of the stocks, not on book values. If the three companies were liquidated at book values the minority interest would amount to \$3,780.00—the direct minority share in S assets, \$1,200.00, plus the indirect minority share in S assets, \$1,080.00, plus the direct minority share in R's "other assets," \$1,500.00. The difference between this amount and the amount of \$3,777.78, the minority interest based on implied values, is \$2.22. This figure, in turn, is the difference between the total minority interest (19%) in the implied offset to S book values of \$888.89 (assuming this item should be interpreted as an offset), amounting to \$168.89, and the direct minority interest (10%) in the implied adjunct to R's other assets of \$1,666.67, amounting to \$166.67. Similarly the majority interest would be \$114,220.00—the direct majority share in R's "other assets," \$13,500.00, the indirect share in S assets, \$9,720.00, and the total of M's "other assets," \$91,000.00. The difference between this result and the amount of \$115,000.00 based on implied values, or \$780.00, is the excess of the majority interest in the implied increase in R values, \$1,500.00 (90% of \$1,666.67), over the majority interest in the implied decrease in S values, \$720.00 (81% of \$888.89).

**Indirect Ownership and Minority Equity—After Acquisition.** If the practice were followed of regularly taking up the appropriate portions of subsidiary profit or loss earned after acquisition on the books of the companies holding the respective stocks, the change in the consolidated majority interest—like the original amount of such interest—would be reflected in the capital and surplus (realized and unrealized) of the parent company. Assume, for example, that M buys 90% of R stock at book value and that at the same time R acquires 90% of S stock, also at book

value. During the following year the realized profits of M, R, and S are \$15,000, \$2,500, and \$1,000, respectively. No dividends have been appropriated, but M accrues 90% of R's profit and R accrues 90% of the profit reported by S. With these conditions consolidation at the end of the year is effected as shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock—Cost	\$ 22,500	\$	\$	\$22,500	\$
Investment in R Stock— Increment	2,250			2,250	
Investment in S Stock—Cost		10,800		10,800	
Investment in S Stock— Increment		900		900	
Other Assets	107,500	16,700	13,000		137,200
	<u>\$132,250</u>	<u>\$28,400</u>	<u>\$13,000</u>	<u>\$36,450</u>	<u>\$137,200</u>
Capital Stock	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus—at Acquisition	15,000	4,500	1,800	6,300	15,000
		500 *	200 *		700 *
Profits—since Acquisition	15,000	2,250	900	3,150	15,000
		250 *	100 *		350 *
Share of Subsidiary Profits	2,250	810			3,060
		90 *			90 *
	<u>\$132,250</u>	<u>\$28,400</u>	<u>\$13,000</u>	<u>\$36,450</u>	<u>\$137,200</u>

\* Minority.

This shows the majority interest to be \$133,060. This is the sum of 81% of the assets of S, \$10,530, 90% of the "other assets" of R, \$15,030, and the total of the "other assets" of M, \$107,500. Similarly the total minority equity of \$4,140 is the amount of 10% of the assets of S, \$1,300, 10% of R's equity in the assets of S, \$1,170, and 10% of R's "other assets," \$1,670.

If the investment accounts are maintained on a cost basis (the preferable treatment, as explained earlier) it is necessary as a part of the work of consolidation to trace the division of profit or loss after acquisition in terms of the successive levels of ownership. This may be done by introducing into the consolidated working papers preliminary adjustments which have the effect of an allocation of subsidiary earnings, but do not disturb the accounts of the individual companies. The result is a procedure substantially the same—as far as the first tabulation is concerned—as that just illustrated. The alternative is to compute the ultimate minority and majority percentages for each company indirectly controlled and assign the profit or loss of such companies accordingly, the data of all companies then being consolidated in the usual manner. The following tabulation is illustrative:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 22,500	\$	\$	\$22,500	\$
Investment in S Stock . . .		10,800		10,800	
Other Assets . . . . .	107,500	16,700	13,000		137,200
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$13,000</u>	<u>\$33,300</u>	<u>\$137,200</u>
Capital Stock . . . . .	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus—at Acquisition . . .	15,000	4,500	1,800	6,300	15,000
		500 *	200 *		700 *
Profits—since Acquisition . .	15,000	2,250	810		18,060
		250 *	190 *		440 *
	<u>\$130,000</u>	<u>\$27,500</u>	<u>\$13,000</u>	<u>\$33,300</u>	<u>\$137,200</u>

\* Minority.

**Indirect Ownership and Dividends.** The effect of subsidiary dividends was discussed in the preceding chapter. It was pointed out that dividends appropriated from surplus accumulated prior to acquisition of subsidiary stock may well be interpreted as a partial return of the investment made by the parent company. It was also pointed out that the treatment of dividends paid from subsidiary profits accrued subsequent to date of acquisition varies with the manner in which the investment account of the parent company is kept.

For an example of the effect of subsidiary dividends in the case of indirect ownership the last illustration given above is used with the added assumption that dividends have been declared and paid by R Co. of \$2,000 and by S Co. of \$1,500. It will also be assumed that the investment accounts have been kept on a cost basis. This means that M profits as booked amount to \$16,800 (the amount of \$15,000 earned through operations and dividends of \$1,800 received from R). On the R books "profits since acquisition" are increased by S dividends in the amount of \$1,350 and are absorbed by R dividends of \$2,000, leaving a balance of \$1,850. On S books current profits are entirely absorbed by dividend action and "surplus at acquisition" is reduced in the amount of \$500. Accepting the view that investment account should be adjusted for dividends appropriated from subsidiary surplus at acquisition, there should now be a preliminary adjustment—in the consolidating working papers if not actually on R books—by which the cost of S stock and the amount of profits since acquisition are reduced by \$450, R's share in S dividends drawn from surplus at acquisition. This will reduce the investment account to \$10,350 and profits since acquisition to a balance of \$1,400. The tabulation below shows how consolidation is effected under these conditions, following the compromise procedure of including

subsidiary profits earned after acquisition in the data of the companies holding the securities.

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock—Cost . . . . .	\$ 22,500	\$	\$	\$22,500	\$
Investment in R Stock— Increment . . . . .	1,665			1,665	
Investment in S Stock—Cost . . . . .		10,800		10,800	
Profits since Acquisition— Contra . . . . .		450		450	
Other Assets . . . . .	109,300	16,050	11,500		136,850
	<u>\$133,465</u>	<u>\$27,300</u>	<u>\$11,500</u>	<u>\$35,415</u>	<u>\$136,850</u>
Capital Stock. . . . .	\$100,000	\$18,000	\$ 9,000	\$27,000	\$100,000
		2,000 *	1,000 *		3,000 *
Surplus—at Acquisition . . . . .	15,000	4,500	1,350	5,850	15,000
		500 *	150 *		650 *
Profits—since Acquisition . . . . .	16,800	1,665		450	18,015
		185 *			185 *
Share of Subsidiary Profits— Balance . . . . .	1,665			1,665	
Investment in Subsidiary Stock —Decrement . . . . .		450		450	
	<u>\$133,465</u>	<u>\$27,300</u>	<u>\$11,500</u>	<u>\$35,415</u>	<u>\$136,850</u>

\* Minority.

In this tabulation contra items are included in the R data in lieu of actual decreases in the investment account and profits since acquisition as shown by the books. The analysis of R profits since acquisition may be shown as follows:

	<i>Total</i>	<i>Majority</i>	<i>Minority</i>
Operating profits . . . . .	\$2,500	\$2,250	\$250
Dividends paid . . . . .	<u>2,000</u>	<u>1,800</u>	<u>200</u>
Balance after dividends . . . . .	\$ 500	\$ 450	\$ 50
Dividends received. . . . .	<u>1,350</u>	<u>1,215</u>	<u>135</u>
	<u>\$1,850</u>	<u>\$1,665</u>	<u>\$185</u>
Less adjustment of investment from surplus at acquisition . . . . .		450	
		<u>\$1,215</u>	

**Mutual Ownership—Investments and Book Values in Agreement.** By mutual ownership, as noted in the preceding chapter, is meant a condition under which one company holds stock in a second company which in turn has an interest in the first company. Such overlapping holdings

may be found among subsidiaries, or in the relation between parent and subsidiary. Occasionally conditions of both indirect and mutual ownership are encountered which are so complex as almost to defy precise interpretation and assignment of equities, either for going-concern or liquidation purposes. Mutual ownership, it may be added, is a condition difficult to justify from the standpoint of effective operating or financial administration of affiliated enterprises.

For a simple example of mutual ownership among subsidiaries assume that M owns 90% of R, R 90% of S, and S 10% of R. All holdings are acquired at the same time and at book values. In this situation consolidation at acquisition is effected as shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>S Co.</i>	<i>Eliminations</i>	<i>Consolidated</i>
Investment in R Stock . . .	\$ 22,500	\$	\$ 2,500	\$25,000	\$
Investment in S Stock . . .		10,800		10,800	
Other Assets . . . . .	92,500	14,200	9,500		116,200
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$35,800</u>	<u>\$116,200</u>
Capital Stock . . . . .	\$100,000	\$20,000	\$ 9,000	\$29,000	\$100,000
			1,000 *		1,000 *
Surplus . . . . .	15,000	5,000	1,800	6,800	15,000
			200 *		200 *
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$12,000</u>	<u>\$35,800</u>	<u>\$116,200</u>

\* Minority.

The dominant company's equity in R under these circumstances is 99% (90 % of direct ownership and 9% of indirect), which leaves a minority equity of 1%. In other words the minority stockholders of S have an interest of 1% (10% of 10%) in R's net worth. The net minority interest at this time, however, is fully represented by 10% of the capital and surplus of S, or \$1,200, as investment accounts are acquired simultaneously and are in agreement with book values. This conclusion may be checked by determining the amounts which would be made available if R and S were now simultaneously liquidated at book values. The usual method of computation is as follows:

$$R = \$14,200 + .90 S$$

$$S = \$ 9,500 + .10 R$$

Substituting,

$$R = \$14,200 + .90 (\$ 9,500 + .10 R)$$

$$S = \$ 9,500 + .10 (\$14,200 + .90 S)$$

Solving,

$$R = \$25,000$$

$$S = \$12,000$$

The minority interest in S is then entitled to receive 10% of \$12,000 or \$1,200.

For an example of mutual ownership between parent company and subsidiary assume two companies, M and R, with M owning 80% of R stock and R owning 15% of M stock. With this relationship M remains the dominant enterprise and consolidation should be effected from this point of view. The minority interest is represented by the outside stockholders of R, and includes the equity of such stockholders in the holding of M stock. Again using corresponding investment costs and book values, with holdings acquired as of a single date, consolidation at acquisition is accomplished as shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . . .	\$ 20,000	\$	\$20,000	\$
Investment in M Stock . . . .		17,250	17,250	
Other Assets . . . . .	95,000	7,750		102,750
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$37,250</u>	<u>\$102,750</u>
Capital Stock . . . . .	\$100,000	\$16,000	\$31,000	\$ 85,000
		4,000 *		4,000 *
Surplus . . . . .	15,000	4,000	6,250	12,750
		1,000 *		1,000 *
	<u>\$115,000</u>	<u>\$25,000</u>	<u>\$37,250</u>	<u>\$102,750</u>

\* Minority.

The majority and minority interests according to this tabulation amount to \$97,750 and \$5,000, respectively. This assignment can be readily checked by assuming an immediate and complete liquidation through which book values as they stand are realized. In this event, the amount the minority stockholders of R would receive may be calculated as follows:

$$M = \$95,000 + .80 R$$

$$R = \$ 7,750 + .15 M$$

Substituting,

$$M = \$95,000 + .80 (\$ 7,750 + .15 M)$$

$$R = \$ 7,750 + .15 (\$95,000 + .80 R)$$

Solving,

$$M = \$115,000$$

$$R = \$ 25,000$$

Then the majority interest, 85% of M, totals \$97,750, and the minority interest, 20% of R, amounts to \$5,000.

Continuing this last example assume that during the first year after acquisition M makes a net profit of \$10,000.00 and R earns a net of \$2,000.00, exclusive of mutual interests in profits. No dividends have been paid. With no liabilities indicated this means that the "other assets" of M and R have been increased in the amounts of \$10,000.00 and \$2,000.00, respectively. The majority and minority equities are now determined as follows:

$$M = \$105,000.00 + .80 R$$

$$R = \$ 9,750.00 + .15 M$$

Substituting,

$$M = \$105,000.00 + .80 (\$ 9,750.00 + .15 M)$$

$$R = \$ 9,750.00 + .15 (\$105,000.00 + .80 R)$$

Solving,

$$M = \$128,181.82$$

$$R = \$ 28,977.27$$

Then 85% of M = \$108,954.55 and 20% of R = \$5,795.45. The sum of these interests is \$114,750.00, the total of the "other assets" of the two companies. The effect of this division is to assign the profits of \$12,000.00 since acquisition to majority and minority interests in the amounts of \$11,204.55 and \$795.45, respectively.

In tabular form the data at this point may be set up as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 20,000	\$	\$20,000	\$
Investment in M Stock . . .		17,250	17,250	
Other Assets . . . . .	105,000	9,750		114,750.00
	<u>\$125,000</u>	<u>\$27,000</u>	<u>\$37,250</u>	<u>\$114,750.00</u>
Capital Stock . . . . .	\$100,000	\$16,000	\$31,000	\$ 85,000.00
		4,000 *		4,000.00 *
Surplus—at Acquisition . .	15,000	4,000	6,250	12,750.00
		1,000 *		1,000.00 *
Profits—since Acquisition . .	10,000	1,600		{11,204.55
		400 *		{ 795.45 *
	<u>\$125,000</u>	<u>\$27,000</u>	<u>\$37,250</u>	<u>\$114,750.00</u>

\* Minority.

In this presentation the figures showing the division between net majority and minority interests at acquisition are preserved and the figure for profits is assigned in accordance with the computation made above. In practice a schedule of computations, with full explanation, should always be included in the working papers. It is noticeable that 20% of the recorded net book value of R no longer represents the net equity of R minority stockholders in the consolidated assets.

**Mutual Ownership—Treatment of Dividends.** What is the effect of the payment of a dividend by one or both of the companies under a condition of mutual ownership? Assume, to illustrate, that R in the foregoing case pays a dividend of the entire amount of profits since acquisition, \$2,000.00. This action will place \$400.00 directly in the hands of R minority stockholders and will add \$1,600.00 to the assets of M. "Other assets" will then stand at \$106,600.00 in the case of M and at \$7,750.00 in the case of R. The equities are now computed as follows:

$$M = \$106,600.00 + .80 R$$

$$R = \$ 7,750.00 + .15 M$$

Substituting,

$$M = \$106,600.00 + .80 (\$ 7,750.00 + .15 M)$$

$$R = \$ 7,750.00 + .15 (\$106,600.00 + .80 R)$$

Solving,

$$M = \$128,181.82$$

$$R = \$ 26,977.27$$

The 85% of M amounts, as before, to \$108,954.55 and the net majority share in profits since acquisition remains at \$11,204.55. However, 20% of R now totals \$5,395.45, which is just \$400.00 less than the net equity of the R minority stockholders as it stood before the dividend was declared. The total assignment to majority and minority interests, in other words, is not modified by the payment of the dividend.

For another example assume that at the end of the first year after acquisition both M and R declare and pay dividends in the entire amount of profits earned for the year, \$10,000.00 and \$2,000.00, respectively. With these conditions the majority stockholders of M would receive \$8,500.00 and \$1,500.00 would be paid into the treasury of R. Similarly the minority stockholders of R would receive \$400.00 and \$1,600.00 would be paid to M. The "other assets" of M will then stand at \$96,600.00 (\$105,000.00 - \$10,000.00 + \$1,600.00) and of R at \$9,250.00 (\$9,750.00 - \$2,000.00 + \$1,500.00). The remaining equities are now found as follows:

$$M = \$ 96,600.00 + .80 R$$

$$R = \$ 9,250.00 + .15 M$$

Substituting,

$$M = \$ 96,600.00 + .80 (\$ 9,250.00 + .15 M)$$

$$R = \$ 9,250.00 + .15 (\$96,600.00 + .80 R)$$

Solving,

$$M = \$118,181.82$$

$$R = \$ 26,977.27$$



The majority interest is accordingly 85% of the computed value for M, or \$100,454.55 and adding the dividend payment received by this interest, \$8,500.00, yields a total of \$108,954.55, the amount determined in the preceding computation. The net equity of the minority interest is evidently not changed by the declaration of dividends by M.

Computation of majority and minority interests following appropriation of a dividend from surplus at acquisition is similarly made. As explained in the preceding chapter, such dividends represent an adjustment of the investment accounts in the process of consolidating, even if not so handled on the books of the holding company.

It is sometimes suggested that mutual stock holdings should be interpreted as treasury shares—shares without voting rights and not entitled to participate in dividends. This suggestion cannot be fully adopted, however, as long as the rights of the corporate stockholder to receive dividends remain unimpaired from a legal point of view.

**Mutual Ownership—Investment and Book Values Divergent.** For an example of the treatment of mutual ownership when the investment accounts are not in agreement with book values assume that M acquires 80% of R stock, with a book value of \$20,000.00, at a cost of \$18,000.00 and that R acquires 15% of M stock, with a book value of \$17,250.00, at a cost of \$17,500.00. The “other assets” of M and R stand at \$97,000.00 and \$7,500.00 respectively and there are no liabilities. The total implied value of M under these conditions is \$116,666.67, an increase over the total book value of \$1,666.67. (If 15% is worth \$17,500, 100% has a value of \$116,666.67.) Similarly the total implied value of R is \$22,500.00, a decrease from total book value of \$2,500.00. The majority interest on this basis, 85% of \$116,666.67, amounts to \$99,166.67, and the minority interest, 20% of \$22,500.00, totals \$4,500.00. The sum of both interests is \$103,666.67. The amount to be eliminated after adjustment of values is the sum of the investment accounts, \$35,500.00:

M's book assets—		
Investment in R . . . . .	\$18,000.00	
Other . . . . .	97,000.00	\$115,000.00
R's book assets—		
Investment in M . . . . .	\$17,500.00	
Other . . . . .	7,500.00	25,000.00
Total book assets . . . . .		\$140,000.00
R implied decrease . . . . .	\$ 2,500.00	
M implied increase . . . . .	1,666.67	833.33
Net implied value of combined assets . . . . .		\$139,166.67
		103,666.67
		<u>\$ 35,500.00</u>

In compiling the consolidated data for this type of situation it is convenient to make a preliminary adjustment to recognize implied values; it is also advisable to report the minority interest on the same basis as the majority. Including the necessary adjustments the tabulation may be made as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 18,000.00	\$	\$18,000.00	\$
Investment in M Stock . . .		17,500.00	17,500.00	
Other Assets . . .	97,000.00	7,500.00		104,500.00
Decrease in R Values. . .		2,500.00 *		2,500.00 *
Increase in M Values. . .	1,666.67			1,666.67
	<u>\$116,666.67</u>	<u>\$22,500.00</u>	<u>\$35,500.00</u>	<u>\$103,666.67</u>
Capital Stock . . . . .	\$100,000.00	\$20,000.00	\$31,000.00	\$ 85,000.00
Surplus . . . . .	15,000.00	5,000.00	6,250.00	4,000.00 †
				12,750.00
Valuation Adjustment . .	1,666.67	2,500.00 *	250.00	1,000.00 †
			2,000.00 *	1,416.67
	<u>\$116,666.67</u>	<u>\$22,500.00</u>	<u>\$35,500.00</u>	<u>\$103,666.67</u>
				500.00*†

\* Deduction. † Minority.

During the first year after affiliation, continuing the example, M's profits amount to \$10,000.00 and R's profits total \$2,000.00. No dividends have been paid. The division of profits between majority and minority interests can be readily determined by the use of equations. Thus:

$$M = \$10,000.00 + .80 R$$

$$R = \$ 2,000.00 + .15 M$$

Solving,

$$M = \$13,181.82$$

$$R = \$ 3,977.27$$

The majority share, 85% of M, is then \$11,204.55, and the minority share, 20% of R, is \$795.45. The total majority interest is \$110,371.22 (\$99,166.67 plus \$11,204.55) and the total minority interest is \$5,295.45 (\$4,500.00 plus \$795.45).

The interests at the end of the year can be computed directly by the equation method provided the equities at acquisition have been revalued as explained above.

**Mutual Ownership—Varying Acquisition Dates.** The M Co., for example, acquires 80% of the stock of the R Co. at a cost of \$20,000.00. At this time the condition of the two companies is as follows:

	<i>M Co.</i>	<i>R Co.</i>
Investment in R Stock . . . . .	\$ 20,000.00	\$
Other Assets . . . . .	95,000.00	25,000.00
	<u>\$115,000.00</u>	<u>\$25,000.00</u>
Capital Stock . . . . .	\$100,000.00	\$20,000.00
Surplus . . . . .	15,000.00	5,000.00
	<u>\$115,000.00</u>	<u>\$25,000.00</u>

During the next year M earns a net profit of \$10,000.00 and R earns a net of \$2,000.00. R now buys 15% of M stock at book value, \$18,750.00. In this situation, with holdings not acquired concurrently, it is necessary to resort to equations to determine the equitable assignment of the available resources.

$$M = \$105,000.00 + .80 R$$

$$R = \$ 8,250.00 + .15 M$$

Solving,

$$M = \$126,818.18; \text{ and } 85\% M = \$107,795.45$$

$$R = \$ 27,272.73; \text{ and } 20\% R = \$ 5,454.55$$

In tabular form the data may be arranged as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . . . .	\$ 20,000	\$	\$20,000	\$
Investment in M Stock . . . . .		18,750	18,750	
Other Assets . . . . .	105,000	8,250		113,250.00
	<u>\$125,000</u>	<u>\$27,000</u>	<u>\$38,750</u>	<u>\$113,250.00</u>
Capital Stock . . . . .	\$100,000	\$16,000	\$31,000	\$ 85,000.00
		4,000 †		4,000.00 †
Surplus—at Acquisition . . . . .	25,000	4,000	7,750	21,250.00
		1,000 †		1,000.00 †
Surplus—since Acquisition . . . . .		1,600		1,600.00
		400 †		400.00 †
Adjustment—Majority . . . . .				54.55 *
Adjustment—Minority . . . . .				54.55 †
	<u>\$125,000</u>	<u>\$27,000</u>	<u>\$38,750</u>	<u>\$113,250.00</u>

\* Deduction. † Minority.

As in earlier examples, the procedure suggested here retains capital and surplus figures and introduces a special adjustment to complete the equitable assignment.

**Mutual Control.** Occasionally the conditions of mutual ownership are such as to bring mutual control. For example, the M Co., with a capital and surplus of \$100,000 and \$25,000, respectively, acquires 70% of the

stock of the R Co., with capital and surplus of \$100,000 and \$40,000, respectively, and at the same time the R Co. acquires 60% of the stock of the M Co. Investment costs and book values are in agreement. In this situation there is no dominant concern or group of stockholders from whose point of view the consolidated data can be compiled and reported. With the cancellation of intercompany accounts there remain only the minority equities to be presented in the consolidated statement. This is shown by the following:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consoli- dated</i>
Investment in R Stock . . .	\$ 98,000	\$	\$ 98,000	\$
Investment in M Stock . . .		75,000	75,000	
Other Assets . . . . .	27,000	65,000		92,000
	<u>\$125,000</u>	<u>\$140,000</u>	<u>\$173,000</u>	<u>\$92,000</u>
Capital Stock . . . . .	\$ 60,000	\$ 70,000	\$130,000	\$
	40,000 *	30,000 *		70,000 *
Surplus . . . . .	15,000	28,000	43,000	
	10,000 *	12,000 *		22,000 *
	<u>\$125,000</u>	<u>\$140,000</u>	<u>\$173,000</u>	<u>\$92,000</u>

\* Minority.

It would of course be possible to prepare a consolidated statement from the point of view of the M Co., ignoring the fact that the assets of the R Co. include an investment in M stock, and then compile a similar statement from the standpoint of the R Co., but it is not clear that any proper purpose could be served by such reporting.

Checking the assignment algebraically:

$$M = \$27,000 + .70 R$$

$$R = 65,000 + .60 M$$

Solving,

$$M = \$125,000$$

$$R = \$140,000$$

Then 40% of M is \$50,000 and 30% of R amounts to \$42,000.

Complete mutual ownership is theoretically possible, but companies so affiliated could carry on no significant operations whatever except as resources were made available by borrowing—and this would hardly be feasible in the absence of a net proprietary investment. Any degree of mutual ownership, it may be added, is a step in the direction of cancellation or liquidation of the stock equities, and the device accordingly has

no merit from the standpoint of the related companies viewed as a going concern.

**Intercompany Revenues and Charges.** Assuming that the purpose of the consolidated operating statement is to depict the revenues and charges of the affiliated companies viewed as a single enterprise, it is clear that intercompany purchases and sales should be eliminated in the process of consolidation. A simple example was shown in the preceding chapter. For emphasis another illustration, involving mutual sales, may be considered here. The M Co. acquires 90% of the stock of the R Co. at the beginning of a particular year. During the following period M's sales total \$200,000, including sales to R of \$20,000; R's sales total \$75,000, of which sales to M amount to \$50,000; no intercompany goods are represented in the inventories at the end of the year. The figures for merchandise cost of sales, including intercompany charges, are \$150,000 and \$60,000 for M and R, respectively. In this situation the net amounts of sales to outsiders and applicable costs are found as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Inter- company</i>	<i>Consolidated</i>
Sales . . . . .	\$200,000	\$75,000	\$70,000	\$205,000
Merchandise Cost of Sales . . . .	150,000	60,000	70,000	140,000

This computation ignores the existence of the minority interest. It might be argued that where a minority interest is present the consolidated income statement, like the balance sheet, should be a compromise report, and that the elimination of sales and cost of sales should be confined to the dominant or majority element in intercompany transactions. It seems reasonable to conclude, however, that it is not expedient to attempt to divide intercompany sales and applicable charges into majority and minority sections. At the best any such assignment would be highly artificial. It would have no effect upon the amount of consolidated net, and would tend to make the operating section of the income sheet less rather than more illuminating. Consideration of the relation of the minority equity to income may well be postponed until the point is reached at which the allocation of net profit becomes necessary.

Segregation of intercompany sales in the revenue accounts affected is a comparatively simple matter, but it is often difficult to trace the effect of such transactions in terms of merchandise or material costs on the books of the buying company. This is especially true where it is necessary to merge intercompany and outside purchases and the process of production includes various operations and stages. There is added difficulty in following intercompany charges precisely where the goods involved pass through the hands of a number of integrated companies. See discussion later of intercompany inventories.

Other forms of intercompany revenue and charges should also be eliminated. Examples are found in intercompany management fees and other service costs. Likewise the effect of intercompany interest charges and credits should be eliminated. Assume, for example, that a parent company loans \$25,000 to a subsidiary at 6%. The interest charge and corresponding earning, amounting to \$1,500 per year, should be suppressed in the consolidated income sheet. In this connection mention may again be made of the need of reconciling the books of related companies with respect to all accruals and transactions in process as a preliminary step in consolidating.

In dealing with intercompany dividends it is preferable to confine the elimination to the majority interest. For example, assume that the operating expenses of M and R in addition to the merchandise costs given above are \$38,000 and \$12,500, respectively, that taxes and other income charges total \$2,000, and \$500, respectively, and that dividends paid amount to \$5,000 and \$1,000, respectively. If the minority interest in the R dividend is retained in the consolidated data the entire income picture—including sales and merchandise cost figures given above—would be as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consolidated</i>
Sales . . . . .	\$200,000	\$75,000	\$70,000	\$205,000
Merchandise Cost of Sales . .	\$150,000	\$60,000	70,000	\$140,000
Other Operating Charges . . .	38,000	12,500	\$ . . . .	50,500
Operating Net . . . . .	\$ 12,000	\$ 2,500		\$ 14,500
Income Charges . . . . .	2,000	500		2,500
Net Profit . . . . .	\$ 10,000	\$ 2,000		\$ 12,000
Dividends Earned . . . . .	900	. . . .	900	
Net Profit . . . . .	\$ 10,900	\$ 2,000		\$ 12,000
Dividends Paid . . . . .	5,000	1,000	900	5,100 *
Addition to Surplus . . . .	\$ 5,900	\$ 1,000	. . . .	\$ 6,900

\* Including dividends on minority shares of R Co., \$100.

The limitations of the consolidated income sheet as a picture of operating relationships and earning power should not be forgotten. A fair operating ratio, for example, may result from a combination of a very good with a very unsatisfactory showing. The more heterogeneous the activities of the affiliated concerns, too, the less significant are the data of the consolidated report.

**Intercompany Income in Inventories.** The consolidated income statement, it is generally agreed, should include no element of income not realized by sales to outside customers. It follows that where intercompany sales are represented in inventories an adjustment should be made, in consolidation, to eliminate the element of earnings involved.

The M Co., for example, acquires all of the capital stock of the R Co., a new concern. During the first year thereafter sales of the parent company total \$200,000, including goods sold to the subsidiary of \$30,000; cost of merchandise and all other applicable charges incurred (including opening inventory) amount to \$196,000; the inventory at the end of the year, on a full cost basis, is \$11,000. R's sales amount to \$75,000; purchases of merchandise, including acquisitions from M, total \$60,000; other applicable charges incurred amount to \$20,000; the year-end inventory at net invoice cost—to R—is \$8,000, and other charges applicable to inventory are estimated at \$2,000. With these conditions the condensed results of operation may be scheduled as follows:

	<i>M Co.</i>	<i>R Co.</i>
Sales . . . . .	\$200,000	\$75,000
Charges . . . . .	185,000	70,000
Net Operating Income. . . . .	\$ 15,000	\$ 5,000

It is now necessary to estimate the element of income to M included in R's inventory and hence employed in computing R's charges to revenue. Assuming that M's sales are all of one class, and that costs are uniformly applicable thereto, it appears that the amount of operating net on each dollar of sales is 7.5 cents and the amount earned on sales to R is therefore \$2,250. Assuming, further, that the invoice cost of R's inventory is made up of acquisitions from M and other purchases in proportion to the respective totals for the period, the amount of goods sold by M included is \$4,000 (30,000/60,000 of \$8,000). It follows that the intercompany income in R's inventory is \$300 (.075 times \$4,000). In compiling the consolidated data this factor may be taken into account either as an adjustment of operating charges or as a special deduction from net.

The following tabulation is illustrative:

	<i>M Co.</i>	<i>R Co.</i>	<i>Eliminations</i>	<i>Consolidated</i>
Sales . . . . .	\$200,000	\$75,000	\$30,000	\$245,000
Total Charges * . . . . .	\$196,000	\$80,000	\$30,000	\$246,000
Closing Inventory . . . . .	11,000	10,000	300	20,700
Current Deductions . . . . .	\$185,000	\$70,000	\$29,700	\$225,300
Net Operating Income. . . . .	\$ 15,000	\$ 5,000	300	\$ 19,700
			<u>\$30,000</u>	

\* Including opening inventory of M Co.; there is no opening inventory in the case of R Co.

To the extent that the intercompany income in the closing inventory is matched by intercompany income in the opening inventory there is an automatic elimination. That is, the combined operating nets, without adjustment, are equivalent to a consolidated net based on sales to outsiders.

In the consolidated balance sheet, likewise, the amount of the intercompany income in the inventory should be excluded. This may be accomplished by showing only the adjusted inventory or by setting up a "reserve for intercompany income in inventory" as a contra to recorded cost figures. The latter procedure is particularly desirable where conditions are such that the amount of the adjustment is only a rough estimate.

If intercompany sales are priced on a strict commercial basis it may be argued that the income arising when goods are transferred to an affiliated company represents a genuine increase in current assets and hence may be interpreted as an element of true income even from the consolidated point of view. Moreover, there is force in the view that income is earned by the entire process of production and that it is therefore reasonable to recognize income in terms of significant stages of production. On the other hand it remains true that intercompany income in the inventory has not been realized by sales to outsiders and that if the corporate lines are ignored intercompany sales assume the character of departmental transfers. At the most such income is earned, rather than realized. The preferable treatment, therefore, is to eliminate all markup—in excess of all costs actually incurred—arising from intercompany transactions; and if such elimination is considered inexpedient because of the difficulty of making a satisfactory estimate the fact that intercompany income is retained in the consolidated inventories should be clearly indicated in a footnote attached to the consolidated statements.

From the standpoint of a minority equity the sales made by one affiliated company to another are final transactions and any income realized on such transactions is effectively realized. It may be argued, therefore, that the adjustment of inventories for intercompany income in the preparation of consolidated statements should be restricted to the controlling or majority interest in such income. On the other hand it may be urged that the purpose of consolidating—to show the activity and position of two or more affiliated companies as they would appear if corporate lines of division were erased—can be more adequately served by full elimination. In any event the full amount of intercompany income in the inventory must be determined before any attempt can be made to assign the effect of the adjustment to majority and minority shares.



It should be recognized that the existence of a minority interest in a company holding an inventory in which intercompany income is present does not create a minority interest in such income. The intercompany income in the inventory, in other words, is defined from the point of view of the selling company, not from that of the buying organization. In the illustration given above, for example, there would be no minority interest in the intercompany income even if M did not own all of R stock, as there is no minority equity in the case of M, the company which makes the intercompany sales.

**Alternative Interpretations of Unrealized Intercompany Income.** In the preceding discussion the position has been accepted that the unrealized intercompany income attaching to inventories is the excess of the selling price of intercompany shipments included in inventories over the total of all costs actually incurred by the vendor, including selling and general charges not ordinarily viewed as inventoriable. In other words, the unearned element is interpreted in terms of operating net income, excluding the effect of nonoperating credits and income charges such as interest on borrowed capital and taxes on profits. A defensible alternative approach would restrict the element eliminated to the portion of the final net profit realized by stockholders which might be imputed to the volume of intercompany sales embodied in goods on hand. Interest, taxes, and other income charges are actually incurred by the constituent company, just as are operating expenses, and such charges are associated with intercompany sales just as definitely as with any other section of business activity. Such charges may not be assignable as costs of production from an enterprise or managerial standpoint, but they represent payments to outsiders as far as the stockholders are concerned, and they must be covered by selling price before distributable profits can appear. It may be argued, accordingly, that the only section of intercompany sales still not realized through sales to outsiders which is in any way fictitious or invalid is the element of final profit.

Another possible line of treatment accepts the view that the adjustment of intercompany sales in inventories should be based on the entire markup in excess of the assigned costs incurred—that portion of total cost which is deemed to be inventoriable. This is less satisfactory than the approach which restricts the elimination to the excess of selling price over an appropriate fraction of all costs incurred.

**Intercompany Loss in Inventories.** Some accountants take the position that although estimated intercompany profit in the inventory should be deducted in computing consolidated net, it is not necessary to make an adjustment in the other direction when intercompany sales have been made at a loss and the inventory based on cost to the buying company

is therefore less than cost to the selling organization. Such inconsistency, although condoned on the ground that it represents conservative practice, is objectionable, particularly from the standpoint of the consolidated income sheet. If the consolidated report of operations is to show the profit or loss realized through sales to outsiders made by the constituent companies viewed as a whole, it is necessary to adjust inventories to the basis of costs incurred by the group, intercompany transfers—and the book gain or loss resulting therefrom—being ignored. Then if it is desired to make some special deduction from consolidated inventories to take into account declining market prices or other unfavorable conditions, such adjustment may be applied to cost figures in a clear-cut manner.

A modification of the example given in the preceding section may be used to illustrate. Assume that M's "total charges" amount to \$216,000, all other conditions remaining unchanged. This means that M has operated at a net loss of \$5,000, or 2.5% of sales. Applying this percentage to the estimated cost of goods in R's inventory acquired from M, \$4,000, gives \$100 as the amount of M's loss applicable to inventory, the amount not realized through sales to outsiders. In the following tabulation the inventory is restored to the consolidated cost basis:

	<i>M Co.</i>	<i>R Co.</i>	<i>Elimi- nations</i>	<i>Consolidated</i>
Sales . . . . .	\$200,000	\$75,000	\$30,000	\$245,000
Total Charges . . . . .	\$216,000	\$80,000	\$30,000	\$266,000
Closing Inventory . . . . .	11,000	10,000	100	21,100
Current Deductions . . . . .	\$205,000	\$70,000	\$30,100	\$244,900
Net Operating Profit . . . . .	\$ 5,000 *	\$ 5,000	100	100
			<u>\$30,000</u>	

\* Loss.

In this artificial situation, where the loss of one company equals the profit of the other, the consolidated net is precisely the amount of the unrealized loss restored to the inventory. On the inventory and net operating profit lines in the tabulation it is noticeable that the intercompany loss in inventory is an addition rather than an elimination.

As in the case of intercompany income in the inventory, the question of how to deal with a minority interest in the intercompany loss in the inventory is somewhat troublesome. Strict adherence to the consolidated point of view leads to a 100% adjustment. If the compromise view be accepted, however, the minority interest in the loss is considered to

be fully realized and hence properly reportable. From this standpoint, as emphasized in other connections, the consolidated statement is considered to be a combination of an adjusted majority interest plus an unadjusted minority slice.

**Inventory Adjustments under Multiple-Level Operation.** The computation of intercompany profit or loss in inventories is likely to be a difficult matter where there are two or more levels of integrated companies involved. Consideration of a simple example will serve to give some indication of the nature of the problem.

Company M, a new corporation, immediately organizes two subsidiaries, R and S. The entire stock of each subsidiary is absorbed by M. Each of the affiliated companies makes only one distinct type of product. During the first year of operation the record of sales is as follows:

	<i>M Co.</i>	<i>R Co.</i>	<i>Outside</i>
M Sales . . . . .	\$	\$	\$200,000
R Sales . . . . .	80,000		20,000
S Sales . . . . .		40,000	

The following is a tabulation of purchases of materials by sources:

	<i>R Co.</i>	<i>S Co.</i>	<i>Outside</i>
M Purchases . . . . .	\$80,000	\$	\$20,000
R Purchases . . . . .		40,000	10,000
S Purchases . . . . .			10,000

The data of inventory costs at the end of the year are as follows:

	<i>Materials</i>	<i>Other</i>	<i>Total</i>
M Inventory . . . . .	\$15,000	\$15,000	\$30,000
R Inventory . . . . .	7,500	7,500	15,000
S Inventory . . . . .	2,500	7,500	10,000

The operating nets of the three concerns, with inventories computed on respective book costs, and with all other expenses taken into consideration, are:

M . . . . .	\$20,000
R . . . . .	10,000
S . . . . .	5,000

With these simple conditions it is possible to estimate intercompany income in inventories even if there has been no segregation and tracing of purchases from affiliates. In the case of the inventory of S there is no intercompany profit involved, as all of S's purchases of materials are from the outside. In the case of R's inventory it may be assumed that 80% of the materials cost involved represents purchases from S, since purchases from S for the period amount to 80% of the total. Similarly, it may be assumed that 80% of the materials cost present in M's inven-

tory represents goods acquired from R, as the data given show that 80% of M's total purchases for the period are covered by receipts from R. Intercompany material costs in inventories may therefore be computed as follows:

In M's inventory, 80% of \$15,000 or \$12,000

In R's inventory, 80% of 7,500 or 6,000

R's operating net of \$10,000 amounts to 10% of R sales. The intercompany income in M's inventory arising from R's operations may then be estimated at 10% of \$12,000, or \$1,200. S's net of \$5,000 amounts to 12½% of S sales. The intercompany income in R's inventory may then be set at 12½% of \$6,000, or \$750. The total of the results of these two computations is \$1,950. But this is not the whole story. Of the materials cost in M's inventory considered to be represented by purchases from R, \$12,000, a portion presumably originated in purchases by R from S. To estimate this factor it is necessary to consider, first, what fraction of R sales is covered by cost of materials. R's total purchases for the period amount to \$50,000; the materials cost in R's inventory at the end of the period is given as \$7,500. The materials cost to R of R sales is therefore \$42,500, or 42.5% of such sales. Applying this percentage to the cross section of R sales embodied in the materials cost of M's inventory, \$12,000, gives \$5,100 as the materials cost to R of this element. Of this figure, in turn, 80% or the amount of \$4,080 is presumably represented by sales from S to R. The income to S included in M inventory may then be estimated at 12½% of \$4,080, or \$510. The total estimated intercompany income in inventory is the sum of this figure and the amount of \$1,950 computed above, or \$2,460. The elimination of this income, unrealized from the consolidated point of view, would be accomplished as explained in the preceding section.

Where each company combines several classes of materials in the production of several kinds of products, and both intercompany and outside purchases and sales are involved, it may be almost impossible to prepare satisfactory estimates of intercompany profits or losses in inventories by the approach outlined. What is needed in such cases is careful segregation of materials costs all along the line, with classification according to sources. But such segregation and classification may be entirely inexpedient. Materials costs are often classified and traced by kind and nature of use, but it is difficult and generally unnecessary to attempt to set up materials charges throughout the cost records by vendors. In practice conditions are often so complex as to render any estimate of doubtful validity. In situations of this type it may be wise to present the consolidated statements without attempting precise adjustment of

inventory. It should be said again that if book inventories which include the effect of intercompany transactions are used in preparing the consolidated reports this fact should be clearly indicated by footnote or otherwise.

Conditions of indirect ownership may or may not accompany integrated operation. Where there are tiers of ownership with minority interests present care must be exercised in assigning the amount of intercompany profit or loss attaching to inventories, assuming that the compromise method of confining the amount of the adjustment to the majority interest is followed. For an example an adaptation of the preceding illustration may be used. M owns 90% of R stock and R owns 90% of S stock; other conditions are as before. In these circumstances the intercompany income in M's inventory is again \$1,710.00 (\$1,200.00 plus \$510.00) and the intercompany income in R's inventory amounts to \$750.00. The minority interest in the income in R's inventory (income to S) is the sum of the direct minority interest of 10%—\$75.00—represented by the S stock in outside hands, plus the indirect minority share of 9%—\$67.50—represented by the equity of the R minority stockholders in S, a total of \$142.50. The minority interest in the R income of \$1,200.00 embodied in M's inventory is 10%, or \$120.00. The minority interest in the S profit of \$510.00 in M's inventory is 19%, or \$96.90. Of the total intercompany profit in inventory of \$2,460.00, accordingly, the minority slice is \$359.40 and the majority share is \$2,100.60.

**Mutual Sales and Inventory Adjustments.** In some cases a company makes sales to an affiliated company from which goods are also purchased. The R Co., for example, a wholly owned subsidiary of the M Co., is engaged in processing materials for the parent company. All materials are purchased from M and the entire product is consigned to M. In the first year of operation R's purchases of materials total \$100,000; sales of processed parts amount to \$150,000. The materials cost of R's inventory at the end of the year is \$10,000. In M's inventory are parts acquired from R at a cost of \$15,000. R's operating net for the year amounts to \$7,500. The net of M which may reasonably be assigned to the department making sales to R is \$5,000. With these conditions the estimated M income represented in R's inventory is \$500 (10,000/100,000 of \$5,000). Similarly the R income in M's inventory is \$750 (15,000/-150,000 of \$7,500). The total profit to be eliminated is accordingly \$1,250.

Tracing the effect of mutual transactions in terms of inventory costs in actual practice may be a very difficult task, especially if there are a considerable number of companies involved and the streams of intercompany purchases and sales flow in several directions. As in the example,

elements of cost may return, in new form, to the company of origin.

**Intercompany Purchases of Fixed Assets.** In the preparation of consolidated reports, ideally, the recorded cost of fixed assets acquired from an affiliate should be adjusted by the amount of any intercompany income or loss involved. Assume, for example, that M acquires equipment from R, a wholly owned subsidiary, at a cost of \$20,000, a figure which includes income to R of \$1,000. With these conditions the consolidated cost of the equipment—cost from the standpoint of the two enterprises viewed as a single entity—is only \$19,000, and it is this amount which should be employed in compiling the data of the consolidated balance sheet. The adjustment may take the form of an outright deduction of \$1,000 from the property account and from profit or surplus as otherwise determined or may be indicated by the use of contra headings on the face of the balance sheet, as shown by the following:

<i>Asset Side</i>			
Equipment—Book Cost . . . . .	\$20,000		
Less Intercompany Profit Included . . . . .	<u>1,000</u>	\$19,000	
<i>Equity Side</i>			
Consolidated Surplus . . . . .	\$ xxxx		
Less Intercompany Profit in Plant Cost . . . . .	<u>1,000</u>		xxxx

Similarly, if the equipment cost R \$21,000 and was acquired by M for \$20,000 it would be necessary to restore the amount of the intercompany loss in order to place the plant account on a consolidated cost basis.

In the consolidated income report the depreciation charge ideally should be based on the adjusted plant account. From the standpoint of the associated companies as a whole, in other words, the cost to be written off is the sum of the charges actually incurred by the group, disregarding intercompany profit and loss. Over the life of the property the effect of this procedure is to increase (or decrease) the consolidated income by the amount of the original adjustment. If, for example, the equipment acquired by M from R at a cost of \$20,000, including an intercompany income of \$1,000, has a life of ten years and no salvage value, the annual depreciation charge booked by M on the straight-line basis will be \$2,000, and the annual consolidated charge will be \$1,900, a difference of \$100 per year or \$1,000 in ten years. The periodic adjustment of net income is then \$100 (ignoring the possible absorption of depreciation in inventories), and each year the special offset to plant account in the consolidated balance sheet is reduced—directly or indirectly—by \$100. At the end of the first year, to illustrate, the book figures are as follows:

Equipment—Book Cost . . . . .	\$20,000
Accrued Depreciation . . . . .	<u>2,000</u>
Net Book Value . . . . .	\$18,000

Adjusted to the consolidated basis, through the use of a special account modifying the depreciation allowance, these figures become:

Equipment—Book Cost . . . . .	\$20,000	
Less Intercompany Profit Included . . . . .	1,000	\$19,000
Accrued Depreciation on Book Cost . . . . .	\$ 2,000	
Less Intercompany Profit Applicable . . . . .	100	1,900
Net Consolidated Value . . . . .		\$17,100

Similarly the original offset to surplus is systematically absorbed over the life of the property. In terms of adjusting entries in the consolidated working papers the procedure may be indicated as follows:

(1)		
Intercompany Profit Applicable to Accrued Depreciation . .	\$100	
Depreciation Charges . . . . .		\$100
(2)		
Consolidated Net Income . . . . .	100	
Intercompany Profit Deductible from Surplus . . . . .		100

Where a minority interest is present and it is desired to adopt the compromise position in preparing the consolidated statements the minority equity in the intercompany profit or loss attaching to fixed assets must be treated as realized and the original adjustment—and later modifications—must be confined to the majority element.

As in the case of current inventories the conditions in practice may make it difficult to ascertain the approximate consolidated cost of fixed assets.

**Working Papers and Procedures.** In general the books of the constituent companies are in no way affected by the process of consolidation. It is necessary, however, that systematic procedures be adopted, including the use of complete working papers, in connection with the preparation of consolidated reports. All papers employed, moreover, should be carefully preserved as a supplementary set of records and accounts.

Some accountants seem to favor the use of "combined" working papers which begin with the adjusted trial balances of the several companies and through which the data of the consolidated income report and the consolidated balance sheet are simultaneously assembled. This practice is not recommended here. For each company of the group, it should be remembered, it is necessary to prepare the usual financial statements, and this work should be completed before consolidation is attempted. It is then possible to base the consolidated reports directly upon the final statements, which simplifies the task considerably. It is also advisable to use distinct working papers in compiling balance-sheet and income-sheet data.

See illustration in the following chapter.

**Presentation of Consolidated Statements.** With respect to the balance sheet the following specific rules and suggestions may be offered.

1. The combined assets, with intercompany elements eliminated, should be classified and listed in accordance with the scheme outlined in Chapter I. It is not necessary to segregate assets by companies.

2. Any modification of subsidiary book values should be clearly indicated, and if the facts are available reconciling elements (differences between investment accounts and book values as of date of acquisition, including effect of later adjustments of such values) should be reported in terms of the conditions prevailing in the particular situation. If there is doubt as to the nature of the discrepancy it should be listed as "excess of cost of subsidiary stock" or "excess of book value of subsidiary stock" rather than as "consolidated goodwill."

3. Liabilities, with intercompany items eliminated, should be dealt with as in the case of a single legal entity. Segregation of liabilities by companies on the face of the statement is in general not desirable, but there is something to be said, from the standpoint of investment analysis, for a separation of holding company bonds from the obligations of subsidiaries.

4. The minority interest should be presented as a distinct element between the liabilities proper and the capital and surplus attaching to the dominant interest. The minority equity need not be shown elaborately on the face of the statement, but it is generally desirable to segregate the amount of preference stocks in the hands of the public. If the minority interest is not valued on the same basis as the majority element this fact should be indicated.

5. The capital and surplus of the dominant or parent company should be presented separately as the primary section of the consolidated stock equity. (See rules applicable to reporting of capital and surplus in Chapter I.) The share of the dominant company in subsidiary surplus or deficit accruing after date of acquisition should be clearly labeled and presented as a supplementary section of the stock equity. It is not necessary to show the origin of this final figure by companies.

6. Consolidated assets and surplus should be adjusted for intercompany profit or loss in inventories or plant accounts, and it is advisable to show the estimated amount on the face of the statement, either parenthetically or as an outright deduction (addition, in the case of loss). It is not improper practice to confine the adjustment to the amount of the majority share provided the nature of the procedure followed is clearly indicated.

7. In addition to the usual footnotes and explanations it is advisable to state clearly the procedure adopted in dealing with the difference



between cost of subsidiary stock and related book value, measurement of minority interest, intercompany profit or loss elements, and other critical problems of consolidation. It is also well to attach condensed schedules of subsidiary assets and liabilities, as well as a list of the names of all subsidiary companies.

With respect to the presentation of the consolidated income statement the principal special points are as follows:

1. Intercompany revenues and costs should be eliminated, without regard to possible division between minority and controlling equities.

2. The effect of the adjustment for intercompany profit or loss in inventory should be clearly shown.

3. The emphasis should be laid on the operating section of the statement, as the primary purpose is to display the results of the activities of the affiliated companies viewed as a whole.

4. Intercompany dividend appropriations and interest charges should be eliminated.

5. The division of surplus or deficit for the period between minority and majority interests should be indicated.

6. Clear explanations of all adjustments should be appended, with supplementary tabulations as needed.

In addition the following general principles should be kept in mind.

1. Consolidated statements should be prepared only where it is plain that they can be useful to managers or investors. In general it is inadvisable to issue such statements where there is no clearly dominant company.

2. Consolidated statements are never a satisfactory substitute for the reports of the dominant corporation as a legal entity. They should be viewed instead as a useful supplement, under certain conditions, to the regular reports.

3. Relationships shown by consolidated statements must not be used in judging working-capital position, operating efficiency, etc. without reference to the statements of all important companies in the group.

### QUESTIONS

1. Discuss the treatment of the minority equity, with special reference to the question of reconciling investment accounts and related book values.

2. With illustrations explain the measurement of the majority and minority interests in the case of indirect ownership: (1) at date of acquisition; (2) after acquisition.

3. What is meant by mutual ownership? With an illustration explain the use of simultaneous equations in determining majority and minority equities under conditions of mutual ownership.

4. "Any degree of mutual ownership is a step in the direction of the liquidation of the related enterprises." Explain.

5. Should the minority interest in intercompany sales and operating charges be eliminated in the consolidated income sheet?

6. What treatment is preferable for intercompany profit or loss applicable to inventories?

7. With an illustration show how intercompany profit in inventories may be estimated in the case of multiple-level operation. Mutual sales.

8. With an example explain the ideal treatment for intercompany profit or loss attaching to plant account.

9. Discuss the question of consolidated working papers. Are the books of the constituent companies affected by the process of consolidating? What general procedure should be followed in consolidating?

10. State the principal points to be observed in the presentation of the consolidated balance sheet. The consolidated income sheet.

## XXXVI

### PREPARATION OF CONSOLIDATED STATEMENTS ILLUSTRATED

**Nature and Purpose of Illustration.** The example used here is a hypothetical case, designed to cover in compact form a considerable number of the problems arising in the preparation of consolidated statements. Cases taken from actual practice are generally too extended for illustrative purposes, and are also unsatisfactory in that they seldom involve a sufficiently wide variety of adjustments and eliminations.

The data used begin with the final ledger balances of the respective companies, after all adjusting and closing entries affecting the books of the individual companies (other than those arising in connection with the work of consolidation) have been posted. As indicated in Chapter XXXV the work of consolidation proper should start with the completed statements of the specific companies (or with the accounts from which such statements are compiled) rather than with the preliminary trial balances. Adopting this procedure permits the work of consolidation to be undertaken as a distinct task, unobscured by the adjustments required for the purpose of preparing statements for particular companies. It is always desirable, however, to have available for reference all working papers and schedules used in the preliminary work of adjusting and closing the accounts of the component legal entities.

**Problem Data.** The final ledger balances of the companies to be consolidated, as of December 31, 1940, are as shown on pages 807-808. These balances are given in condensed form except where intercompany relations are involved. The condensed income-sheet data for the respective companies are shown on page 808. In each case the period covered is the year ending December 31, 1940.

In addition the following facts are available:

1. Avon owns 80% of the stock of Barr acquired at the date of issue, and 10% of the common stock of Call purchased by negotiation as of the close of business December 31, 1939, at par value. Avon also owns 10% of Call preferred stock, acquired at par at date of issue. Barr owns 80% of the common stock of Call, purchased at par value at the close of business December 31, 1939.

2. Avon is the original holder of all Barr bonds, acquired December 31, 1939, at the issue price of 95. These bonds are due December 31, 1949. On Barr's books the item of bond discount was immediately charged to surplus. Call owns Avon bonds in the par amount of \$10,000, acquired from a private holder July 1, 1940, at a cost of \$9,000. The Avon bonds were all issued at par July 1, 1930, and mature July 1, 1950.

3. At the beginning of 1940 Barr owed Avon \$20,000 on account of accrued patent royalties; during 1940 Barr paid Avon \$80,000 on royalty account; on December 31, 1940, Barr owes Avon \$10,000 for accrued royalties.

4. Avon's buildings are on land owned by Barr which has been leased by Avon for twenty-five years at a monthly rental of \$250; on December 31 rent for one month is accrued payable. An examination of company adjustments shows that this accrual has been omitted on Barr's books although recognized by Avon. On the other hand Barr did include in 1940 rent income the rent for December, 1939, collected in January, 1940.

5. All Call sales are made to Barr. In Barr materials inventory on December 31, 1940, and in the material costs of work in process and finished goods, are charges representing materials acquired from Call during 1940 at a cost to Barr of \$25,000; these goods cost Call, including all charges, \$25,800. On December 31, 1940, Barr owes Call \$20,000. Since the Call Co. stock was not acquired until the close of business December 31, 1939, there was no unrealized intercompany profit or loss attaching to Barr inventories at the beginning of 1940.

# AVON CO. AND SUBSIDIARIES

## Balance-Sheet Data

As of December 31, 1940

	Avon Co.	Barr Co.	Call Co.
<i>Debit Balances:</i>			
Commercial Bank Accounts . . . . .	\$ 39,500	\$ 25,000	\$ 30,000
Office Cash Accounts . . . . .	1,000	1,000	1,500
Accounts Receivable—Intercompany . . . . .	10,000		20,000
Accounts Receivable—Other . . . . .	10,000	75,000	
Materials and Supplies—Cost . . . . .	5,000	35,000	60,000
Work in Process—Cost . . . . .	5,000	30,000	25,000
Finished Product—Cost . . . . .	10,000	45,000	10,000
Investments—Avon Co. Bonds . . . . .			9,000
Investments—Barr Co. Stock . . . . .	320,000		
Investments—Call Co. Preferred Stock . . . . .	10,000		
Investments—Call Co. Common Stock . . . . .	20,000	160,000	
Investments—Barr Co. Bonds . . . . .	47,500		
Investments—Government Bonds . . . . .	62,000	30,000	30,000
Land—Cost . . . . .		50,000	45,000
Buildings and Equipment—Cost . . . . .	60,000	106,500	110,000
Patents—Cost . . . . .	500,000		
	<u>\$1,100,000</u>	<u>\$557,500</u>	<u>\$340,500</u>

*Credit Balances:*

Allowance for Bad Debts . . . . .	\$	\$ 2,500	\$
Allowance for Depreciation . . . . .	10,000	20,000	10,000
Allowance for Patent Amortization . . . . .	100,000		
Accounts Payable—Intercompany . . . . .	250	30,000	
Accounts Payable—Other . . . . .	5,750	15,000	5,500
Dividends Payable . . . . .		10,000	
Interest Accrued Payable . . . . .	6,000		
Taxes Accrued Payable . . . . .	10,000	5,000	1,000
Other Current Liabilities . . . . .	1,000	5,000	4,000
Debenture Bonds—6% . . . . .	200,000		
Mortgage Bonds—5% . . . . .		50,000	
Capital Stock Preferred—6% . . . . .	200,000		100,000
Capital Stock Common . . . . .	500,000	200,000	200,000
Paid-In Surplus . . . . .		200,000	
Reserve for Contingencies . . . . .	25,000		10,000
Earned Surplus—Unappropriated . . . . .	42,000	20,000	10,000
	<u>\$1,100,000</u>	<u>\$557,500</u>	<u>\$340,500</u>

## AVON CO. AND SUBSIDIARIES

## Income-Sheet Data

Year Ending December 31, 1940

	Avon Co.	Barr Co.	Call Co.
Sales . . . . .	\$34,000	\$700,000	\$350,000
Royalties Income . . . . .	70,000		
Royalties Expense . . . . .		70,000	
Production Cost of Goods Sold * . . . . .	24,600	530,000	330,000
Selling and Shipping Expense * . . . . .	4,000	61,000	20,000
General and Administrative Expense * . . . . .	25,000	25,000	11,000
Rent Income . . . . .		3,000	
Interest Income . . . . .	4,500	1,000	1,000
Dividend Income . . . . .	1,600	8,000	
Interest Charges . . . . .	12,000	2,500	
Income and Profits Taxes . . . . .	7,500	3,500	
Net Profit . . . . .	37,000	20,000	
Net Loss . . . . .			10,000
Dividends on Preferred Stock . . . . .	12,000		
Dividends on Common Stock . . . . .	20,000	10,000	10,000
Addition to Surplus . . . . .	5,000	10,000	
Decrease in Surplus . . . . .			20,000
* Depreciation and Amortization Included . . . . .	32,000	7,000	8,000

6. Call preferred dividends for 1940 were declared in full on December 31, 1939, to stock of record January 10, 1940. There are no arrearages of preferred dividends in the case of either Avon or Call and neither issue of preferred stock has any special participating rights.

7. All dividends on common stock shown by the income-sheet data have been paid except one of \$10,000 declared by Barr on December 31, 1940; as yet there has been no recognition of this dividend on Avon books.

8. Interest on Barr bonds has been paid in full to December 31, 1940. Interest for six months is due on Avon bonds on January 1, 1941. In Call Co. adjustments the interest accrued on Avon bonds held has been neglected.

9. All investment accounts are on a cost basis.

10. Income and profits tax returns are assumed to be filed by the individual companies.

**Reconciliation of Investments and Book Values.** In this illustration it is assumed that all investment accounts are based on cost—that there has been no absorption of intercompany profit or loss on holding company books. In the treatment followed here, moreover, the consolidated data are compiled without the making of adjusting entries in the working papers necessary to take up holding company shares of subsidiary profit or loss.

Avon acquired 80% of Barr stock at date of issue (not given) at a cost of \$320,000. This is just 80% of the total book value of capital stock appearing on Barr books, exclusive of earned surplus. Barr's entire surplus has accrued since date of acquisition, and therefore no reconciliation is required here. It will be necessary, however, to divide Barr's surplus between majority and minority interests.

Avon acquired 10% of Call common stock at the end of 1939 at a cost of \$20,000. The book value of this stock at that time, however, was \$240,000, after the appropriation of 1940 preferred dividends, and 10% of this amount is \$24,000, a figure exceeding cost by \$4,000. The computation is as follows:

Capital stock account . . . . .	\$200,000
Earned surplus (including reserve for contingencies) 12/31/40 . . . . .	20,000
Decrease in surplus, 1940 . . . . .	20,000
<b>Total book value 12/31/39 . . . . .</b>	<b>\$240,000</b>
<b>Of which 10% is . . . . .</b>	<b>\$ 24,000</b>
<b>Cost of 10% of stock . . . . .</b>	<b>20,000</b>
<b>Excess of subsidiary book value over cost . . . . .</b>	<b>\$ 4,000</b>

This treatment assumes the reserve for contingencies is true surplus and takes account of the statement that the preferred stock has no special participating rights.

Barr acquired 80% of Call common stock at the end of 1939 at a cost of \$160,000. The computation of the reconciling figure for this section of the intercompany holding of this stock is:

Total book value 12/31/39 (as computed above) . . . . .	\$240,000
<b>Of which 80% is . . . . .</b>	<b>\$192,000</b>
<b>Cost of 80% of stock . . . . .</b>	<b>160,000</b>
<b>Excess of subsidiary book value over cost . . . . .</b>	<b>\$ 32,000</b>

The total reconciling figure with respect to intercompany holdings of Call common stock is then \$36,000. With the data available there is no way of determining definitely the nature of this difference. In view of the poor earning performance of the Call Co. in 1940 it may represent largely "negative goodwill," the difference between the value of the assets fused in the particular setting and the total of all resources as individually compiled.

In this treatment the reconciliation is confined to the intercompany section of the Call capital stock. As explained in Chapter XXXIV, adjustment of the minority interest to the same basis as the majority interest is defensible.

Avon owns 10% of Call preferred stock purchased at the end of 1939. This purchase was made at par, which is also book value at date of purchase. However, at precisely the time this stock was acquired, apparently, the Call Co. declared dividends thereon for an entire year in advance. And since the date of record is January 10 the Avon Co. in effect acquired a dividend receivable of 6%, or \$600, on the block purchased. From this point of view it can be argued that this block of stock was actually acquired at a discount of \$600, after taking into account the dividends declared. In the income-sheet data the item of dividends received is shown in Avon's accounts as an earning; if the interpretation just indicated is adopted it follows that it should have been applied to the total cost of the preferred stock. On the other hand it should be borne in mind that the dividends were declared a year in advance, and if all collections of these dividends are treated as credits to the total amount invested the investment will show no earning power whatsoever in 1940. Moreover, the declaration of the dividends in advance for 1940 did not impair the value of the preferred stock on Call's books, and such value remains intact at the end of 1940. Assuming this preferred stock is cumulative, further, the prospects for continued dividends in 1941 are fairly good in view of the very strong current position of the Call Co. In view of all angles of the situation, accordingly, it seems reasonable to accept without adjustment the accounting for Call preferred stock and dividends as recorded on Avon's books.

On Barr's books the mortgage bonds outstanding, issued December 31, 1939, appear at par or maturity value, \$50,000, while on the books of Avon the bonds appear at cost at date of issue, \$47,500. The discrepancy of \$2,500 arises from the fact that the issuing corporation immediately wrote off the discount of five points. With this discount restored on Barr's books the related accounts are in harmony, subject to possible variation in policies of accruing the discount element. (See later discussion of adjusting entries.)

Call holds a block of Avon bonds which cost \$9,000 and which appear on Avon books at the par amount of \$10,000. The difference of \$1,000 is a special reconciling factor which should not be confused with the differences between stock investments and corresponding book values. A bond discount of the character indicated does not imply overvaluation of specific assets, lack of earning power, or marked danger of ultimate default. It does suggest, however, that the immediate market for the class of security involved is less favorable than at date of issue, and it may indicate that the prospects of the issuing company are less satisfactory than formerly.

Intercompany accounts receivable and payable are in harmony except for failure of Barr to accrue December rent receivable and Call to accrue interest on Avon bonds held.

**Adjusting Entries.** As stated above no attempt will be made in this illustration to adjust the accounts of specific companies for the holding company share of subsidiary profit or loss. If this were done adjusting entries for the purpose would be required on the consolidated working papers. There are, however, a number of adjustments needed to take care of entries which should have been made, ideally, on the books of particular companies, or which are needed to facilitate the process of consolidation. These are:

Relative to Avon Accounts

(1)

Investments—Barr Co. Bonds . . . . .	\$ 250	
Interest Income . . . . .		\$ 250
To accrue discount accumulation for 1940 on straight-line basis		

(2)

Dividends Receivable . . . . .	8,000	
Dividend Income . . . . .		8,000
To accrue Avon share of Barr dividends		

Relative to Barr Accounts

(1)

Accounts Receivable—Intercompany . . . . .	\$ 250	
Rent Income . . . . .		\$ 250
To accrue rent for December, 1940		

(2)

Rent Income . . . . .	250	
Earned Surplus—Unappropriated . . . . .		250
To transfer rent for December, 1939, improperly credited to income in 1940, to surplus		

(3)

Mortgage Bonds Discount . . . . .	2,500	
Earned Surplus—Unappropriated . . . . .		2,500
To restore to surplus discount charged off at date of issue		



(4)		
Interest Charges . . . . .	250	
Mortgage Bonds Discount . . . . .		250
To accrue bond discount accumulation for 1940 on straight-line basis		

## Relative to Call Accounts

(1)		
Interest Accrued Receivable . . . . .	\$ 300	
Interest Income . . . . .		\$ 300
To accrue interest for six months on Avon bonds held		

(2)		
Dividends on Preferred Stock . . . . .	6,000	
Earned Surplus—Unappropriated . . . . .		6,000
To cancel effect of declaring 1940 preferred dividends in advance by shifting charge to 1940 income data		

The accrual of discount with respect to Avon accounts on Barr bonds owned may be objected to on the ground that such accumulation by a security holder is not accepted for income-tax purposes and is regarded by many accountants as the recognition of a form of unrealized income. There is, however, considerable precedent in financial institutions for a systematic absorption of discount and premium on contractual securities owned, particularly in the case of short-term receivables and investments. And aside from the question of Avon's accounting it is desirable to make the adjustment for the purposes of consolidation.

The interest method of accumulation is preferable to the straight-line treatment but the latter procedure is employed here for the sake of simplicity.

The accrual of dividends declared as a sound asset and earning on the books of the stockholder is generally deemed to be acceptable procedure, and hence the dividends declared by Barr payable January 10, 1941, might well have been recognized by Avon, to the extent of the stock held. A minor objection to such accruals is found in the fact that if the holder sells his stock before the dividend record date he will not receive the dividend (except in the sense that the price of the stock may be said to cover the dividend). In any event an adjustment of the type indicated is required for purposes of consolidation.

Entries (1) and (2) relative to Barr's books evidently might be boiled down by eliminating the debit and credit to income. Recognizing the two phases of the correction, however, makes the nature of the adjustment more clear. Again it may be argued that this adjustment need not be reflected on Barr's books proper, on the ground that if the Company prefers to account for rent income on a cash basis it has a right to do so.

Entries (3) and (4) applicable to Barr's books should be made for the sake of Barr accounting as well as for consolidated purposes. Discount should be systematically accumulated on the issuing company's books.

Straight-line accrual is standard procedure for income-tax purposes on the issuer's (not the holder's) books although the interest method of spreading is logically preferable.

The entries restoring the effect of declaring Call dividends in advance to the data of 1940 need not be posted to any set of company accounts and have no effect upon the work of preparing the consolidated balance sheet, but this adjustment has some merit for the sake of securing a better arrangement of consolidated income data. In the income statement of Call Co., moreover, there is something to be said for a showing of the 1940 preferred dividend charge in conjunction with 1940 income data.

It should be understood that the book value of the common stock of Call as of December 31, 1939, would not be affected by an adjustment designed to shift the effect of the dividends on Call preferred stock to 1940. The appropriation of the 1940 dividends in 1939 converts a section of surplus into a liability to preferred shareholders. It is assumed that the purchases of Call common stock at the end of 1939 take into account the declaration of the preferred dividends in advance, and that the book value related to the cost of the stock is exclusive of surplus dedicated to preferred dividends by appropriate legal action. A more difficult case to settle would be one in which preferred dividends were in arrears, but undeclared, at the date of acquisition of common stock.

No adjustment is suggested for discount accumulation in the case of the block of Avon bonds bought in midyear by Call. However, if it be assumed that Call will hold these bonds to maturity it would not be unreasonable, in Call accounting, to adopt a procedure by which the item of discount were systematically accumulated by charges to investment and credits to interest income. Aside from any question of Call accounts, moreover, a case can be made for gradual absorption of the discount in handling the consolidated data. If this treatment were adopted in preparing consolidated statements for 1940, for example, discount in the amount of \$50 (accumulation for six months, on straight-line basis) would be absorbed by charging bond investment and crediting Call income.

All of the entries shown (except the last pair relating to Call accounts) are reflected in the work sheet for the consolidated balance sheet appearing on pages 816-817. However, all debits and credits affecting income-sheet accounts are treated as direct entries to surplus in this work sheet. The entries appear in more detail on the work sheet for the consolidated income statement on pages 820-821.

**Dividends from Surplus at Acquisition.** Without considering the adjusting entries given above there was a net loss to Call common stock during 1940 of \$10,000. It appears, then, that the common dividends

paid in 1940 were appropriated from surplus in existence at the time the stock of Call was acquired by Avon and Barr. As explained in a preceding chapter, dividends appropriated from earned surplus are generally considered to be income to the shareholder, rather than an adjustment of investment, from the legal point of view. For the purposes of the consolidated statements, however, the assumption that such dividends are a liquidation of investment, dollar for dollar, has merit and this interpretation is accepted in this example. Additional adjusting entries are therefore required as follows:

Avon Accounts			
Dividend Income		\$1,000	
Investments—Call Co. Common Stock			\$1,000
To close dividends on Call Co. common stock to investments			
Barr Accounts			
Dividend Income		\$8,000	
Investments—Call Co. Common Stock			\$8,000
To close dividends on Call Co. common stock to investments			

**Computation of Minority Stock Interest.** All of Avon stock, both common and preferred, is held outside the group of affiliated companies, and Avon common stock constitutes the dominant equity. In the case of Barr 80% of the stock is held by Avon and a minority interest of 20% is outstanding in the hands of outsiders. This minority interest carries with it 20% of Barr surplus.

The direct minority interest in Call common stock is 10%, the amount of such stock directly held by outsiders. In addition there is an indirect minority interest of 16% (20% of 80%). In other words, the majority interest in Call common stock, from the standpoint of equitable apportionment of assets rather than voting power, is only 74% (the 10% owned outright by Avon and 64%—80% of 80%—owned indirectly). At date of acquisition the minority interest of 26% in Call resources is fully represented by the direct minority interest of Barr plus the direct minority interest of Call, taking into account the difference between cost of subsidiary stock and subsidiary book value at that date. In apportioning Call surplus (or loss) after date of acquisition, however, care must be taken to see to it that the total minority interest is computed at 26%. As explained in preceding chapters it may sometimes be desirable as a first step in determining minority interest in profit or loss to "take up" the holding company's share by means of an adjustment in the consolidated working papers.

Of the Call preferred stock 90% is held outside and 10% is held by Avon. No surplus element attaches to this stock under the conditions given.

**Intercompany Loss in Inventories.** Elimination of intercompany profit attaching to the inventory in the preparation of consolidated statements is standard practice. Many accountants object, however, to restoration of cost figures for goods in the inventory which have been transferred from one company to another at a loss. In this example it is assumed that it is desired to place the inventories on a strict cost basis for purposes of consolidated statements.

According to the data given there is a loss to Call attaching to goods held by Barr at the end of 1940 amounting to \$800. One possible treatment would be to add back this loss in full to the amount of the inventories. The principal alternative is to treat the minority interest in this loss as fully realized and adjust the inventory by only the amount of the controlling interest. Either procedure can be defended and may be considered acceptable practice. In this example the adjustment is confined to the amount attaching to the majority issue, \$592 (74% of \$800). In entry form the adjustment is shown as follows:

Barr Inventories—Intercompany Loss Included. . . . .	\$592	
Consolidated Surplus—Intercompany Loss in Inventory . . . . .		\$592

Consolidated statements should include a clear indication of the treatment accorded to intercompany profit or loss attaching to inventories, and hence unrealized. A possible procedure is to disclose the amount of the adjustment on the face of the statement as a modifying factor attaching to both inventories and surplus.

As explained in Chapter XXXV, it may not be a simple matter to define the character of the intercompany loss or gain attaching to inventory, or to compute the amount.

**Work Sheet for Consolidated Balance Sheet.** A few comments on the work sheet appearing on pages 816 and 817 are in order. First, it should be noted that many variations in the structure of such sheets are possible. The debit and credit columns may be set up in parallel form throughout (as in the case of the "adjustments" columns in the example), a totals column may be inserted after adjustments and before eliminations, the "consolidated" area may be expanded by including a special column for minority interests, more extensive use may be made of contra items, etc. If there are many companies involved it may be desirable to list companies vertically and accounts horizontally. As indicated earlier, many accountants prefer to combine income-sheet and balance-sheet data in one main work sheet. No one procedure has all the merits. In practice the procedure should be employed which best meets the needs of the particular situation, and there is room for the exercise of plenty of ingenuity and resourcefulness in this connection. Free use should

**AVON CO. AND SUBSIDIARIES**  
**Work Sheet for Consolidated Balance Sheet**  
**As of December 31, 1940**

	Avon Co.		Barr Co.		Call Co.		Adjustments		Eliminations	Consolidated
	Dr.		Dr.		Dr.		Dr.	Cr.		
Commercial Bank Accounts . . . . .	\$ 39,500		\$ 25,000		\$ 30,000		\$		\$	\$ 94,500
Office Cash Accounts . . . . .	1,000		1,000		1,500					3,500
Accounts Receivable—Intercompany . . . . .	10,000				20,000		(1) 250		30,250	
Interest Accrued Receivable—Intercompany . . . . .							(2) 300		300	
Dividends Receivable—Intercompany . . . . .							(3) 8,000		8,000	
Accounts Receivable—Other . . . . .	10,000		75,000							85,000
Materials and Supplies—Cost . . . . .	5,000		35,000		60,000					100,000
Work in Process—Cost . . . . .	5,000		30,000		25,000					60,000
Finished Product—Cost . . . . .	10,000		45,000		10,000					65,000
Intercompany Loss in Inventory . . . . .							(4) 592			592
Investments—Avon Co. Bonds . . . . .					9,000				9,000	
Investments—Barr Co. Stock . . . . .	320,000								320,000	
Investments—Call Co. Preferred Stock . . . . .	10,000								10,000	
Investments—Call Co. Common Stock . . . . .	20,000		160,000					(5) 9,000	171,000	
Investments—Barr Co. Bonds . . . . .	47,500						(6) 250		47,750	
Investments—Government Bonds . . . . .	62,000		30,000		30,000					122,000
Land—Cost . . . . .			50,000		45,000					95,000
Buildings and Equipment—Cost . . . . .			106,500		110,000					276,500
Patents—Cost . . . . .	60,000									500,000
Mortgage Bonds—Discount . . . . .										
Discount on Call Holding of Avon Bonds . . . . .							(7) 2,500	(8) 250	2,250	
Excess of Book Value of Call Common Stock at Acquisition over Cost . . . . .									1,000	
									36,000	
	<u>\$1,100,000</u>		<u>\$557,500</u>		<u>\$340,500</u>				<u>\$635,550</u>	
										<u>\$1,402,092</u>

[illegible]

always be made of supplementary schedules showing particular computations and adjustments in adequate detail.

The adjusting entries shown are explained in detail earlier. The difference between the cost of Avon bonds held by Call and the value on Avon books, and the excess of the book value of the intercompany holdings of Call common stock over cost at date of acquisition, are shown as balancing entries between "eliminations" and "consolidated" rather than as part of the "adjustments." A variation here would be to show these items as contras under consolidated debits; this would make it unnecessary to repeat the titles on the other side.

The minority interest in Barr surplus, all of which has accrued since Avon acquired control, is 20% of the adjusted balance of \$14,500, or \$2,900, and the majority interest is 80%, or \$11,600. For the sake of clarity the handling of the earned surplus of Call is shown in some detail. The surplus at date of acquisition, after preferred dividends for 1940 had been declared, amounted to \$40,000. Deducting the dividends on Call common stock paid in 1940 leaves \$30,000 of such surplus. Of this amount 90% or \$27,000 is absorbed in connection with the elimination of the related investment accounts, as adjusted. The balance of 10% is the minority slice at date of acquisition. The net loss for 1940 of \$9,700 (after adjustment for accrued interest on Avon bonds held by Call) has not been taken up on the holding company books and hence is assignable to majority and minority shares on a 74-26 basis, as explained earlier.

The minority interest in Call reserve for contingencies is merged with the remaining portion of the minority interest in surplus. From the standpoint of the consolidated statement there would be no point to segregation of this item.

**Consolidated Balance Sheet.** This is shown on page 818. The presentation followed has a number of special features. First, subsidiary companies are referred to at a number of points; were the companies numerous this would not be feasible on the face of the statement. Second, the excess of subsidiary book value over cost of stock is treated as a contra to consolidated assets as otherwise determined. On the other hand the discount on Avon bonds held by Call is included in "capital and surplus," following the view that such a discount is somewhat similar to a "profit" derived by a particular company from the acquisition of outstanding bonds at less than book value. Third, the surplus figures attaching to the minority interests in common stocks are not segregated by companies. In the case of Barr stock there is a minority interest in capital surplus of \$40,000 and a minority interest in earned surplus of \$2,900. In the case of Call there is a minority interest in surplus at acquisition of \$3,000 and this is offset by the minority share in 1940

**AVON COMPANY**  
(and Subsidiaries Barr Co. and Call Co.)  
Consolidated Balance Sheet, December 31, 1940

<i>Assets</i>				
<b>Current:</b>				
Cash on Hand and in Banks . . . . .	\$ 98,000			
Government Bonds—Cost . . . . .	122,000			
Accounts Receivable . . . . .	\$85,000			
Less Allowance for Bad Debts . . . . .	2,500	82,500	\$302,500	
<b>Inventories—Cost *</b>				
Materials and Supplies . . . . .	\$100,000			
Work in Process . . . . .	60,000			
Finished Product . . . . .	65,000			
Intercompany Loss Included . . . . .	592	225,592	\$ 528,092	
<b>Plant:</b>				
Land—Cost . . . . .		\$ 95,000		
Buildings and Equipment—Cost . . . . .	\$276,500			
Less Allowance for Depreciation . . . . .	40,000	236,500	331,500	
<b>Patents—Cost . . . . .</b>				
Less Allowance for Amortization . . . . .		\$500,000	400,000	
		100,000		
			\$1,259,592	
Excess of Subsidiary Book Value at Acquisition over Cost of Intercompany Holdings . . . . .			36,000	
			\$1,223,592	
<i>Equities</i>				
<b>Current Liabilities:</b>				
Accounts Payable . . . . .	\$ 26,250			
Interest and Dividends Payable † . . . . .	7,700			
Taxes Accrued Payable . . . . .	16,000			
Other Current Liabilities . . . . .	10,000	\$ 59,950		
<b>Fixed Liabilities:</b>				
Debenture Bonds—6%, Due July 1, 1950 . . . . .		190,000		
Total Liabilities . . . . .			\$ 249,950	
<b>Minority Stock Equities:</b>				
Preferred Stock of Call Co.—6%, Dividends Paid . . . . .		\$ 90,000		
Common Stock of Barr Co. and Call Co. (includ- ing capital surplus) . . . . .		100,000		
Surplus . . . . .		3,378	193,378	
<b>Capital and Surplus (controlling interest):</b>				
Preferred Stock (Avon)—6%, Dividends Paid . . . . .		\$200,000		
Common Stock (Avon)—Par . . . . .	\$500,000			
<b>Earned Surplus (Avon):</b>				
Reserve for Contingencies . . . . .	\$25,000			
Unappropriated . . . . .	49,250	74,250		
Consolidated Surplus ‡ . . . . .	5,014	579,264	779,264	
Discount on Avon Bonds held by Call Co. . . . .			1,000	
			\$1,223,592	

\* After restoring majority share of intercompany loss attaching to inventory, \$592.

† Dividends payable amount to \$2,000 on minority interest in Barr stock.

‡ Includes effect of inventory adjustment of \$592.



**AVON CO. AND SUBSIDIARIES**  
**Work Sheet for Consolidated Income Statement**  
**Year Ending December 31, 1940**

	<i>Avon Co.</i>	<i>Barr Co.</i>	<i>Call Co.</i>	<i>Adjustments</i>		<i>Eliminations</i>		<i>Consolidated</i>
				<i>Dr.</i>	<i>Cr.</i>	<i>Dr.</i>	<i>Cr.</i>	
Sales . . . . .	\$ 34,000	\$700,000	\$350,000				\$350,000	\$734,000
Royalties Income . . . . .	70,000						70,000	
Rent Income . . . . .		3,000					3,000	
<b>Operating Revenue—Total . . . . .</b>	<b>\$104,000</b>	<b>\$703,000</b>	<b>\$350,000</b>					<b>\$734,000</b>
Production Cost of Goods Sold . . . . .	\$ 24,600	\$530,000	\$330,000		(1) \$ 592	\$350,000		\$534,008
Selling and Shipping Expense . . . . .	4,000	61,000	20,000					85,000
General and Administrative Expense . . . . .	25,000	25,000	11,000			3,000		58,000
Royalties Expense . . . . .		70,000				70,000		
<b>Operating Charges—Total . . . . .</b>	<b>\$ 53,600</b>	<b>\$686,000</b>	<b>\$361,000</b>					<b>\$677,008</b>
Operating Net . . . . .	\$ 50,400	\$ 17,000	\$ 11,000 *					\$ 56,992
Interest Income . . . . .	4,500	1,000	1,000		(2) 550		3,050	4,000
Dividend Income . . . . .	1,600	8,000		(4) \$ 9,000	(3) 8,000		8,600	
<b>Total Net Income . . . . .</b>	<b>\$ 56,500</b>	<b>\$ 26,000</b>	<b>\$ 10,000 *</b>		(5) 250	3,050		<b>\$ 60,992</b>
Interest Charges . . . . .	12,000	2,500						11,700
Net Before Income Taxes . . . . .	\$ 44,500	\$ 23,500						\$ 49,292
Income and Profits Taxes . . . . .	7,500	3,500						11,000
<b>Net Profit to Stockholders . . . . .</b>	<b>\$ 37,000</b>	<b>\$ 20,000</b>	<b>\$ 10,000 *</b>		(6) 6,000	600		<b>\$ 38,292</b>
Dividends on Preferred Stock . . . . .	12,000							17,400
<b>Net to Common Stock . . . . .</b>	<b>\$ 25,000</b>	<b>\$ 20,000</b>	<b>\$ 10,000 *</b>			17,000		<b>\$ 20,892</b>
Dividends on Common Stock . . . . .	20,000	10,000	10,000					23,000

Addition to Surplus . . .	\$ 5,000	\$ 10,000	\$ 20,000 *
Earned Surplus, January 1, 1940 (+) . .	62,000	10,000	40,000
		<u>\$ 20,000</u>	
Earned Surplus, December 31, 1940 (+)	<u>\$ 67,000</u>		
Intercompany Loss in Inventory . . .	(1) 592		
Investments—Barr Co. Bonds (Avon) . .	(2) 250		
Interest Accrued Receivable (Call) . . .	(3) 300		
Dividends Receivable (Avon) . . .	(3) 8,000		
Investments—Call Co. Common Stock (Avon) . . .		(4) 1,000	
Investments—Call Co. Common Stock (Barr) . . .		(4) 8,000	
Mortgage Bonds—Discount (Barr) . . .		(5) 250	
Accounts Receivable—Intercompany (Barr) . . .			
Mortgage Bonds—Discount (Barr) . . .	(7) 250		
Dividends Applicable to Investments— Call Co. Common Stock . . .	(8) 2,500		
Intercompany Surplus at Acquisition . .			9,000
	<u>\$27,142</u>	<u>\$27,142</u>	<u>\$ 36,000</u>
			<u>\$479,650</u>
			<u>\$479,650</u>

\* Loss or decrease.

† Including reserve for contingencies.

† Realignment of Call preferred dividends, 1940.

loss of \$2,522. It is not believed necessary to show these details of the minority equity in the consolidated statement. Fourth, the holding company equity in subsidiary surpluses is distinguished from Avon's own surplus. The origin of the figure given is as follows:

Holding company share of Barr surplus . . . . .	\$11,600
Holding company equity in Call loss (74%) . . . . .	7,178
	<u>\$ 4,422</u>
Intercompany loss in inventory restored . . . . .	592
	<u>\$ 5,014</u>

It may be noted that the preferred stock of Call held by outsiders is a "minority" equity only in the sense that it does not represent a controlling or dominant interest.

**Work Sheet for Consolidated Income Statement.** The work sheet for the income statement appears on pages 820-821. Some accountants might object to the use of a separate work sheet in connection with the preparation of the income statement, especially as there is some overlapping in such a sheet and a complete tabulation for balance-sheet purposes. However, it is believed that the process can be described with greater clarity through two distinct compilations, and that the separation is helpful in facilitating the preparation of a well-arranged income report. There is also an advantage in the very complete check afforded by this method.

As in the case of consolidated-balance-sheet compilation almost innumerable variations in procedure are possible. The form of sheet used here has a number of special features. First, the income data are presented in running statement form. That is, the actual income statements of the several companies, before adjustments arising in connection with consolidation, are tabulated, and the consolidated data are compiled in similar form. It should be noted in this connection that only those horizontal lines on which adjustments or eliminations appear can be cross-checked. Second, a distinction is drawn between "adjustments" and "eliminations"; these data are closely related and might be combined. These columns are prepared in balanced form. The precise significance of "debit" or "credit" under adjustments in each case depends upon the nature of the data on the line. For example, the credit of \$592 to "production cost of goods sold" has the effect of a reduction of the cost figures, and the debit to "interest charges" of \$250 has the effect of increasing such charges. In the eliminations columns all debit items eliminated are in the debit column and all credit items eliminated are in the credit column. Third, on this sheet the additional titles required for the adjusting entries are grouped and the entries appear in some detail, substantially

in accord with the outline of such entries presented earlier. In view of this feature of the procedure there might be some advantage in preparing this compilation before the balance-sheet work sheet. In this connection a minor variation may be noted. If the credit adjustments required under (4) were entered on the line "dividends on common stock," the elimination on that line would be reduced to \$8,000 and there would be no need for the special balancing figure of \$9,000 at the foot of the eliminations. However, this change would result in suppressing the credits to investment accounts labeled (4) and would thus give rise to a need for a special footnote.

The adjustments and eliminations follow directly from the data outlined earlier. Intercompany purchases and sales, royalties, and land rentals are fully eliminated. In the case of "production cost of goods sold" the only net change required after canceling intercompany purchases (by Barr from Call) is the deduction of the intercompany loss (to Call) still attaching to inventories (Barr's). This adjustment, as explained, assumes that what is desired is a consolidated income statement and balance sheet from which are fully eliminated the effect of intercompany transfers of goods and services. Since there are no intercompany sales involving Avon and Barr the question of royalty costs attaching to Barr inventories is not significant as long as the entire effect of the royalties credits and charges is eliminated. The rent expense to Avon is credited to "general and administrative expense." Actually this charge may be spread through all of the expense classes; there are no data on this point. The purpose of the realignment of Call 1940 preferred dividends, it may be reiterated, is to show the relation of such dividends to 1940 earnings in the income statement. The debit elimination of \$17,000 of "dividends on common stock" is matched by the amount of \$8,000 of the credit elimination of "dividend income" and the balancing figure of \$9,000 referred to above. For further explanation of the compilation of surplus data see the schedule on page 825.

It should be emphasized again that in connection with all phases of the process of consolidation supplementary entries, notes, computations, and schedules should be prepared in good form and should be retained as part of the file of consolidated papers. For example, in connection with the determination and application of the inventory adjustment special schedules are needed. These should show the book figures (for the individual companies) at the beginning of the period and the amount of intercompany profit or loss attaching to each class of inventory. To such beginning figures should be added all charges applicable. Deducting the inventories at the end of the period, modified by the new inventory adjustment, gives the adjusted cost of goods sold. The computation of the

inventory adjustment should be set up in detail. In the example given here there is no intercompany profit or loss associated with the beginning inventories, as the stock of the Call Co.—the only one making intercompany sales—was acquired at the first of the year and the opening inventories are covered by the investment accounts and the original reconciliation. The adjustment at the end of the period applicable to material costs in Barr inventories is given in a lump-sum figure, with no supporting details.

**Consolidated Income Statement.** This appears below. The statement consists simply of a formal presentation of the data compiled in the work sheet. As indicated by the notes, the minority shares in dividends and surplus are included. A possible variation would be to show minority dividends separately as a charge akin to interest. No further explanations are required.

**AVON COMPANY**  
(and Subsidiaries Barr Co. and Call Co.)  
Consolidated Income Statement  
Year Ending December 31, 1940

Sales . . . . .		\$734,000
Expenses:		
Production Cost of Goods Sold . . . . .	\$534,008	
Selling and Shipping Expense . . . . .	85,000	
General and Administrative Expense . . . . .	58,000	
		677,008 <sup>(1)</sup>
Net Operating Revenue . . . . .		\$ 56,992
Interest Income . . . . .		4,000
Total Net Income . . . . .		\$ 60,992
Interest Charges . . . . .		11,700
Net before Income Taxes . . . . .		\$ 49,292
Income and Profits Taxes . . . . .		11,000
Net Profit to Stockholders . . . . .		\$ 38,292
Dividends on Preferred Stock <sup>(2)</sup> . . . . .		17,400
Net to Common Stock . . . . .		\$ 20,892
Dividends on Common Stock <sup>(3)</sup> . . . . .		23,000
Decrease in Surplus . . . . .		\$ 2,108
Earned Surplus at January 1, 1940 <sup>(4)</sup> . . . . .		84,750
Earned Surplus, December 31, 1940 <sup>(5)</sup> . . . . .		\$ 82,642

<sup>(1)</sup> Depreciation and amortization included totals \$47,000.

<sup>(2)</sup> Includes \$5,400 of regular dividends on Call Co. preferred stock outstanding in hands of public. These dividends were declared in full in 1939 but were paid in 1940.

<sup>(3)</sup> Includes \$2,000 of dividends on minority holding of Barr Co. stock and \$1,000 of dividends on minority holding of Call Co. stock.

<sup>(4)</sup> Includes \$4,000 of minority interest in Call Co. surplus at beginning of year; also includes effect of restoring Call Co. preferred dividends for 1940 declared in 1939 and adjustments of rent and mortgage bond discount with respect to Barr Co. accounts.

<sup>(5)</sup> Includes minority interest of \$3,378. See consolidated balance sheet.

**Surplus Schedule.** An analysis and reconciliation of surplus is often needed to support the data of the consolidated balance sheet and income statement. A schedule of this character, applicable to the illustration under consideration, is shown below:

AVON CO. AND SUBSIDIARIES				
Surplus Analysis and Reconciliation				
	<i>Avon</i>	<i>Barr</i>	<i>Call</i>	<i>Totals</i>
Balance, 1/1/40 . . . . .	\$ 62,000	\$10,000	\$40,000	\$112,000
Profits, 1940, per Books . . . .	37,000	20,000	10,000 *	47,000
Adjustments:				
Interest . . . . .	250	250 *	300	300
Rent . . . . .		250		250
Bond Discount . . . . .		2,500		2,500
Dividends . . . . .	{8,000 1,000 *	8,000 *		1,000 *
	<u>\$106,250</u>	<u>\$24,500</u>	<u>\$30,300</u>	<u>\$161,050</u>
Dividends . . . . .	32,000	10,000	10,000	52,000
	<u>\$ 74,250</u>	<u>\$14,500</u>	<u>\$20,300</u>	<u>\$109,050</u>
Eliminations . . . . .	.....	.....	27,000	27,000
	<u>\$ 74,250</u>	<u>\$14,500</u>	<u>\$ 6,700 *</u>	<u>\$ 82,050</u>
Intercompany Loss in Inventory .	.....	.....	592	592
	<u>\$ 74,250</u>	<u>\$14,500</u>	<u>\$ 6,108 *</u>	<u>\$ 82,642</u>
Majority . . . . .	\$ 74,250	\$11,600	\$ 6,586 *	\$ 79,264
Minority . . . . .	.....	2,900	478	3,378
	<u>\$ 74,250</u>	<u>\$14,500</u>	<u>\$ 6,108 *</u>	<u>\$ 82,642</u>

\* Loss or deduction.

The computation of the distribution of Call surplus may be checked as follows:

		<i>Elimina- tions</i>	<i>Consolidated</i>		
			<i>Majority</i>	<i>Minority</i>	<i>Total</i>
Balance 1/1/40 . . . . .	\$40,000	\$36,000	.....	\$4,000	\$4,000
Adjusted Loss . . . . .	9,700 *	.....	\$7,178 *	2,522 *	9,700 *
Dividends . . . . .	10,000 *	9,000 *	.....	1,000 *	1,000 *
Intercompany Loss in Inventory . . . . .			592		592
	<u>\$20,300</u>	<u>\$27,000</u>	<u>\$6,586 *</u>	<u>\$ 478</u>	<u>\$6,108 *</u>

\* Loss or deduction.



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